DOCUMENT RESUME

ED 075 670 VT 020 050

TITLE	Training for Agriculture: Annual Review of Selected Developments.
INSTITUTION	United Nations Food and Agriculture Organization, Rome (Italy).
PUB DATE	72
NOTE	82p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Adult Vocational Education; *Agricultural Education; Annual Reports; Curriculum Development; Developing Nations; *Farm Occupations; Foreign Countries; *International Programs; Program Development; Rural Development; *Rural Extension; *Vocational Agriculture
IDENTIFIERS	African Nations; Far East; Near East

ABSTRACT

This review is a medium for dissemination of information and views on agricultural education and training, extension, and related subjects to the member governments and field workers of the Food and Agriculture Organization of the United Nations. The document consists of more than two dozen articles and comments on agricultural education, training, and development in various areas of the world. The contents include discussions on the future of agricultural education, training youth for farming in the Far East, training for effective use of irrigation water in the Near East, instructional policies, curriculum improvement, the importance of practical training, adult education for rural development, young farmers' clubs in Nigeria, rural development in Malaysia, extension work in promoting agricultural cooperatives in Spain, Cuba's hybrid countryside schools, extension worker training, development of intermediary technologies in Africa, and practical training for extension workers in the Malagasy Republic. (MF)

FILMED FROM BEST AVAILABLE COPY

ED 075670

TRAINING FOR AGRICULTURE

VT020050

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

ED 075670

U.S. DEPARTMENT OF HEALTH.
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY

TRAINING FOR AGRICULTURE

Annual Review of Selected Developments

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 1972

TRAINING FOR AGRICULTURE

Annual Review of Selected Developments

This Review is a medium for the dissemination of information and views on agricultural education and training, extension and related subjects, to the United Nations, FAO Member Governments, FAO National Committees, national and international institutions and field workers. It replaces the annual reviews "Agricultural Education and Training" and "Extension", and will be issued annually in English, French and Spanish.

Readers requiring more detailed information concerning the contents of the Review should write to: The Editor, "Training for Agriculture", Agricultural Education and Training Service, Human Resources and Institutions Division*,FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

The opinions expressed in this document are the personal views of the individual authors and do not necessarily reflect those of FAO.

* Formerly Rural Institutions Division.

* * * * *

Acknowledgements for illustrations are made to the following:

- FAO Photo Unit
- National Food and Nutrition Commission, Zambia
- Florita Botts
- G.N. Bamford
- Y. Nagata
- AZAD
- Antonio Salvador Chico
- Arthur Gillette
- I.W. Kelton

* * * * *

CONTENTS

Page

WHERE SHOULD AGRICULTURAL EDUCATION GO FROM HERE? by Philip H. Coombs.. 1

TRAINING YOUTH FOR FARMING IN ASIA AND FAR EAST REGION by G.N. Bamford.. 7

TRAINING AND EXTENSION FOR EFFECTIVE USE OF IRRIGATION WATER by Wajih D. Maalouf.. 12

A MORE COMPREHENSIVE POLICY FOR AGRICULTURAL INSTRUCTION by D. Parrot.. 19

PLANNING IMPROVED CURRICULA FOR VOCATIONAL AND TECHNICAL AGRICULTURAL SCHOOLS by D.W. Martens.............................. 22

THE IMPORTANCE OF PRACTICAL TRAINING by J.O. Cherrington.. 26

ADULT EDUCATION FOR RURAL DEVELOPMENT by D.L. Umali.. 29

ANALYSIS OF THE WORKING OF YOUNG FARMERS' CLUBS IN WESTERN STATE, NIGERIA by R.O. Adegboye et al..................... 33

NEW PERSPECTIVES FOR RURAL DEVELOPMENT IN MALAYSIA by Abdullah bin Ujang.. 36

EXTENSION WORK IN PROMOTING AGRICULTURAL COOPERATIVES - EXPERIENCE IN SPAIN by Antonio Salvador Chico..................... 49

CUBA'S SCHOOL IN THE COUNTRYSIDE: AN INNOVATIVE HYBRID by Arthur Gillette.. 52

ENVIRONMENT AND EDUCATION.. 56

A COMMENT ON "THE ROLE AND TRAINING OF THE EXTENSION WORKER"....... 59

DEVELOPMENT OF INTERMEDIARY TECHNOLOGIES AND THE AFRICAN CONCEPT OF PARTICIPATION by Roland Colin......................... 62

NEW METHODS OF PRACTICAL TRAINING FOR EXTENSION WORKERS - THE EXAMPLE OF THE MALAGASY REPUBLIC by Christian M. Lauwers.. 65

NOTES AND COMMENTS.. 73

LIST OF CONTRIBUTORS

1.	Philip H. Coombs	Vice-Chairman of International Council for Educational Development, Essex, Conn., U.S.A.
2.	G.N. Bamford	Principal of Navuso Agricultural School Suva, Fiji
3.	Wajih D. Maalouf	Agricultural Extension Officer Human Resources and Institutions Division FAO, Rome
4.	D. Parrot	Head of the Rural Education Division Federal Higher School of Agriculture Yaoundé, Cameroons
5.	D.W. Martens	Agricultural Education Officer Human Resources and Institutions Division FAO, Rome
6.	J.O. Cherrington	Farmer and Agricultural Journalist, U.K.
7.	D.L. Umali	Assistant Director-General/Regional Representative for Asia and the Far East FAO, Bangkok
8.	R.O. Adegboye	Senior Lecturer, University of Ibadan Ibadan, Nigeria
9.	Abdullah bin Ujang	Project Director of Farmers' Association Division, Department of Agriculture Malaysia
10.	Antonio Salvador Chico	Agrarian Extension Service Ministry of Agriculture, Madrid, Spain
11.	Arthur Gillette	School of Education, University of Massachusetts, U.S.A.
12.	Roland Colin	Director-General, International Institute of Research and Training, Paris.
13.	Christian M. Lauwers	Until recently FAO Expert in Madagascar

* * * * *

WHERE SHOULD AGRICULTURAL EDUCATION GO FROM HERE?

by

Philip H. Coombs*

Throughout the developing world agricultural education is today undergoing an important transition from an era of institution building to a new era in which consolidation, reorientation, and innovation will be priority needs. The ideas and actions of this critical transition period are likely to mould the future for a long time to come. Hence it is especially important now to re-examine critically the objectives, underlying assumptions, efficiency and effectiveness of existing modes of agricultural education and to debate these matters widely and candidly.

Enormous strides have been made in just a few years in many nations - including many of the poorest ones - toward creating an infrastructure for agricultural education and research. In little more than a decade, literally thousands of new institutions and programmes have been created - agricultural schools, institutes, colleges and universities, research stations, farmer training centres and extension services of various sorts. All this required not only a large investment of scarce resources but, even more, an enormous outlay of energy and dedication by a great many people.

In evaluating the performance of these new institutions one needs to bear in mind their tender age and to remember that comparable institutions in more developed nations took generations to achieve their present level of maturity - with plenty of room still remaining for improvement. One must also recognize the heavy handicaps under which these new agricultural education programmes have been obliged to operate: inadequate budgets, shortages of talent, the low prestige and rewards so widely associated with careers in agriculture and rural areas, and, in many instances, government development priorities and agricultural policies (including land tenure policies) that have impeded rather than promoted vigorous agricultural and rural development.

On the other hand, there are also major weaknesses within agricultural educational systems over which the managers of these systems, at least in principle, have a more direct and substantial measure of control.

---

* The Editorial Committee of this review invited me to summarize some impressions of agricultural education that my colleagues and I gained during the past two years in the course of conducting an international study of non-formal education for rural development. Since agricultural extension and other forms of farmer training are among the major non-formal education programmes found in the rural areas of developing nations today, we paid much attention to these in our investigative trips to developing countries, in discussions with many national and international experts, and in reviews of a wide assortment of documents. Though we covered considerable ground, it should be emphasized that we saw but a small fraction of the whole and that the impressions given here do not apply equally to all situations. Indeed, any generalizations in this field must allow for many exceptions.

A Framework for Assessment

The analytical framework suggested below for assessing these weaknesses involves viewing agricultural education in any nation as a "knowledge delivery system" whose overall purpose is to help farmers achieve better knowledge and understanding and to change their behaviour and practices in order to improve productivity, income and general well-being - for themselves, their families and their neighbours.

This "delivery system" has a variety of interlocking components, each of which has particular functions essential to the effective operation of the system as a whole. Thus, for example, the staff development function is entrusted to the agricultural colleges and to other formal and non-formal training organizations (such as agricultural secondary schools and inservice training centres for extension workers). The crucial knowledge-generating function - the keystone of the system - is entrusted both to agricultural colleges and universities and to separate research centres and field stations. The extension function that links the whole system to its ultimate clients, the farmers, is entrusted in many countries to a separate "extension service."

The system's communications arrangements, among its components and between the system and its agricultural clients, are crucial to its effectiveness. For example, researchers who are generating knowledge must not only convey their findings to farmers in understandable form, either directly or through the extension personnel, but also keep constantly informed of the farmers' evolving knowledge needs in order to set future research priorities intelligently.

The acid tests of the whole system's efficiency and productivity are what kinds of new knowledge actually get through to the farmer, whether he finds this new knowledge feasible and useful, and to what extent he uses it and succeeds in improving his performance. The acid test of efficiency and effectiveness for each component of the system is how well it performs its particular function relative to the resource costs involved in achieving these results. A serious malfunction in any one important component, or a breakdown in any critical channel of communication, jeopardizes the effectiveness and productivity of the whole system.

The Record of Performance

Applying these analytical concepts and tests of performance to agricultural educational systems, as they have operated in developing countries, one cannot escape the conclusion that in most instances efficiency and productivity are disappointingly low - certainly much lower than the architects of these systems anticipated and encouraged others to expect.

There is a wide consensus among well-informed and sympathetic observers that on the whole - allowing for notable exceptions - agricultural extension services in Latin America, Africa and Asia have had at best only a marginal impact on agricultural production and income, and this primarily for major export crops 1/. Where relatively dramatic breakthroughs in agricultural production have occurred (usually triggered off by the introduction of high-yielding new varieties of seeds), the regular extension service has generally played only a minor role in the accomplishment.

There appear to be two major causes for this relatively poor record. The first is that agricultural education and research systems are not behaving as systems. There is no generally accepted, all-embracing concept of what agricultural education is and should be, no overall planning of the system as a system, no mechanism to ensure that the system's various components are reasonably balanced, coordinated, and in communication with one another, and no adequate means for critically evaluating its performance.

The extension wing has generally been blamed if the response and performance of farmers are disappointing. But this is too narrow a view of the truth. While extension services typically have serious weaknesses, including some of their own making, their unimpressive accomplishments often result from the lack of adequate backstopping from the staff-development and knowledge-generating components at higher echelons of the system, and from generally poor communications and relationships throughout the system.

A second major cause of poor performance by agricultural education systems is inadequate integration with the larger strategies, plans, and needs of agricultural development. The knowledge delivery system is but one sub-system of a larger agricultural and rural development system. If other factors needed for effective development - such as good ecological potential, adequate supplies of labour, seeds, fertilizer, insecticides, water and credit, as well as attractive cost-price incentives and access to good markets - are weak or absent, then education and knowledge of new technologies cannot alone produce an upswing in production and income. The complementarity of education and other development factors seems obvious; yet many extensionists and other agricultural educators have often acted as if they believed that education and technology alone could precipitate development in an otherwise static situation.

As long as conditions of fragmentation within agricultural education systems exist, and as long as this lack of complementarity between educational inputs and other essential factors and preconditions for development continues, it must be expected that investments in agricultural education and research will produce much lower returns than would be possible under better planning and management.

Need for Clear Objectives

The first requirement for the efficient planning and management of an agricultural education system is the setting of clear and compatible objectives, not only on a broad national scale but area by area, clientele by clientele, and from one period in time to another. If the overall goal is to help all farmers to improve their lot - poor subsistence farmers as well as better-situated commercial farmers - then there must obviously be a differentiation of specific objectives, research and extension methods to fit the widely varying needs and circumstances of different sub-groups of farmers and of different agricultural zones. Moreover, once agriculture in any area really starts to move, the knowledge needs of farmers will grow quickly, requiring the research and extension components to move even more rapidly to keep one step ahead of these needs.

Again, all this seems rather obvious, yet time and again one finds evidence of agricultural systems whose specific objectives and priorities are not at all clear, or whose behaviour belies their proclaimed objectives, or whose objectives are much narrower than the situation warrants and may even be contradictory.

The lack of appropriate and broad goals shows up in the often superficial criteria used by various components for assessing performance. For example, extension services may measure achievement by the number of farmer contacts made per month. But some extension services have no really vital and valid "message" for the farmers (either because the knowledge-generating components have not produced one or because the extension agents are ill-informed or incompetent); nevertheless, they go through the motions of telling farmers things they either already know or else are in no position to apply. In fact, on the basis of the acid test suggested earlier, and regardless of the number of farmers contacted, such a service has achieved nothing whatsoever.

Similarly, an agricultural college that assesses its progress primarily by the number of graduates produced each year is using an inadequate measure. The real tests are how many graduates actually take up posts in the agricultural development system, how well prepared they are to perform effectively in these posts, and what the college is doing to assist the further career development and to meet the continuing need for knowledge among its former graduates and other personnel already serving in the agricultural system. Most agricultural colleges would score badly on these tests.

In other parts of the system, the adoption of narrow objectives has often proved self-defeating. For example, most researchers and agricultural experts have been single-mindedly concerned with boosting physical production of selected commercial crops and have set their targets and measured their success mainly in these terms. Often they have ignored the basic economic and logistical constraints - such as glutted or inaccessible markets - to such a strategy. The farmer is interested in increasing his net income at minimum risk, and sometimes the best way to do this may not be simply to increase the yield per acre of a particular commercial crop that the extension service may be promoting. For example, some Asian farmers specializing in rice production today may soon find it more advantageous to diversify their crops if a continued rise in regional rice production lowers the market price. Is the extension and research system prepared to help the farmers do what is best for them, or is it so preoccupied with pushing up production of a particular crop that it is leading farmers to act against their own best interests?

Concern solely with boosting production has also frequently led extension services to concentrate on the most affluent and sophisticated farmers who are in the best position to try new production-increasing technologies. A good case can be made for this discriminatory strategy, in the short term, if the only object is to increase overall production as fast as possible. But from a slightly longer-term point of view, the consequences of such a strategy for the distribution of income and land holdings and for rural employment and the general welfare can be detrimental and socially very disturbing (as can the premature introduction of sophisticated labour-saving farm machinery).

These consequences cannot be dismissed by agricultural experts as "somebody else's problem". For better or worse, agricultural development strategies have a profound influence on the shape of rural development. If the broader public policy calls not simply for increasing production and agricultural income but also for promoting social justice and preventing the wide gap between the privileged and the disadvantaged from widening further, then agricultural policies and strategies - including the behaviour of extension and research services - cannot with impunity be geared to the simplistic objective of higher production at all costs.

Identifying and Correcting the Principal Points of Weakness

In their future efforts to strengthen and improve the performance of agricultural education systems, developing nations and the external agencies devoted to helping them should employ a broader systems strategy. The piecemeal approaches previously followed, whereby different groups of specialists independently evolved limited "projects" for different components of the whole system, should be abandoned. What is needed is an appraisal of the performance and adequacy of each component and the critical relationships between them in terms of the system's total needs and objectives, viewed against the wider context of the whole agricultural and rural development scene. Such a comprehensive diagnosis is bound to yield a combination of priority actions required to strengthen the system at its weakest points.

In many countries the prescription resulting from such a system-wide diagnosis might include several of the following action guides:

1. Top priority should be given to broadening and strengthening the system's knowledge-generating capabilities, including in particular:

   (a) strengthening economic and other social science research in order to better understand the farmer's whole situation and to ensure the overall soundness and feasibility of technical recommendations coming from biological research;

   (b) broadening the scope of biological research to include attention to all the various input and ecological factors farmers must consider in adopting new technologies;

(c) bringing research as close to the farmers as possible, making greater use of their lands and animals for adaptive research and local trials instead of using experimental fields and conditions that are unrepresentative of the conditions under which farmers operate;

(d) strengthening the flow of feedback information from farmers to research centres in order to fit research to the most pressing needs.

2. High priority should be given to improving the knowledge and comptence of field-level personnel in contact with farmers, particularly by:

(a) providing more frequent and relevant inservice training;

(b) improving the utilization of such personnel by, for example, relieving them of inappropriate clerical tasks, and

(c) reinforcing their efforts and extending their reach by using mass communication media.

3. Greater attention should be given to involving farmers directly in the diagnosis of their own problems and knowledge needs, thereby

(a) creating and answering to a genuine demand for pertinent knowledge;

(b) creating conditions for communication among farmers about improved practices;

(c) helping the farmer think of himself as an active partner in the development process, rather than as a passive recipient of the extension service's aid, and

(d) lessening the self-defeating authoritarian character of many extension services.

4. The formal educational institutions dealing with agriculture must be assessed on their contributions to the whole agricultural development process, which, in many instances, will necessitate a number of reforms:

(a) The excessively academic admission standards and programmes of agricultural colleges should be revised to ensure the recruitment and retention of students more qualified and motivated for work in rural areas and to reduce the high attrition of graduates into non-agricultural urban jobs.

(b) Practical field experience in rural areas should be introduced in the programmes of agricultural colleges, strengthening their research capabilities generally and especially in agricultural economics and sociology, and deploying a substantial portion of their total resources to the further education and refresher training of personnel already in the system, including those performing extension functions.

(c) Agricultural secondary schools,in so far as they lack clear objectives and well-defined functions to perform within the system, should be transformed to make them more useful for agricultural development or eliminated and their facilities converted for other purposes.

The foregoing list of needed actions is only partial and illustrative; obviously each country must make its own diagnosis and come up with its own prescription. The important point is that all items on such a list should be seen not as distinct and separate measures but as a well-coordinated pattern of actions designed to improve the performance of the knowledge delivery system as a whole and to promote the overall goals of agricultural development.

A Large Vision of the Educational Future

This discussion has focussed on agricultural education as a means of helping farmers to improve their productive techniques and income and thus to contribute more effectively to agricultural development. But it must be remembered that agricultural development per se is only one aspect of rural development - though a vitally important one. Viewed in the large, rural development involves the transformation and modernization of the entire rural economy, including the creation and strengthening of many non-agricultural economic units in the fields of commerce, manufacturing, and various service trades. This is a prerequisite for generating wider and more rewarding employment opportunities and better living conditions for the expanding rural population.

Rural development also calls for improved health and diet, housing, broadened educational opportunities, and general elevation of the quality of life for rural families. Finally, it calls for the recasting of old social and political structures, for a broadened base of local leadership, and for much greater participation by rural people in deciding their own affairs and improving their own conditions.

Accelerated progress toward these broader objectives will require a diversified, wide-ranging and well-integrated "rural learning system" that includes, but goes well beyond, agricultural education. This broader educational system must be a life-long educational system, capable of serving rural people of all ages and both sexes with a great diversity of learning opportunities pertinent to their immediate needs and longer-range prospects. Of necessity, it must be to a large extent a non-formal educational system, not only because a vast expansion of formal schooling as we now know it is not economically feasible for the foreseeable future in many rural areas, but also because formal schooling by its very nature is not well suited to serving many of the practical educational needs and clienteles concerned.

This larger vision of a rural learning system has profound implications for agricultural extension, farmer training, and other familiar local forms of agricultural education, as they now exist. No one can be sure right now what specific changes must be effected in these educational models inherited from the past. But we can be virtually certain that older models will rapidly become obsolete unless they yield to the broad needs of rural development and of a changing agriculture.

All this is a practical necessity, not a utopian dream. If rural people are to contribute to their nation's development and to share equitably in its fruits, they must be provided more adequate opportunities to learn the essentials for self-improvement and for playing effectively their different roles in the larger process of rural development. This is the broader perspective that agricultural education requires as it enters a new era.

1/ See, for example, E.B. Rice, Extension in the Andes: An Evaluation of Official U.S. Assistance to Agricultural Extension Services in Central and South America, Washington, D.C., AID Evaluation Paper 3, (April 1971). Also, D.G.R. Belshaw, Planning the "Improvement Approach": Agricultural Extension Education and Research. Paper presented at the Third East African Agricultural Economics Conference at the University College, Dar-es-Salaam (April 1967). A.T. Mosher, Agricultural Education and Extension. Paper presented to Southeast Asia Development Advisory Group meeting, New York (April 1-2, 1966). Arthur T. Mosher, Education, Research and Extension in Agricultural Economics in Asia and Latin America Today, (reprint), prepared for the International Conference of Agricultural Economists, Mysore, India, August 1958.

TRAINING YOUTH FOR FARMING IN ASIA AND FAR EAST REGION

by

G.N. Bamford

Another 1 000 million people to feed and employ in the next 30 years! This is the outlook for the countries extending from Pakistan to Korea 1/, already the most densily populated belt in the world. Food production and the provision of employment will therefore be major tasks of almost every country in Asia and the Far East.

The introduction of high-yielding crop varieties and the adoption of improved farming techniques have brought the "green revolution" to many countries so that impressive strides have been made in food production. Employment however remains a major problem and one which, unless resolved, seriously threatens future social and political stability. For most countries, the acuteness of the situation is being increased by the generally rising levels of education which raise the aspirations of youth for the limited urban employment available.

Agriculture is the basis of the economy of almost all countries, up to 85 percent of the population obtaining their livelihood either directly from farming or agro-industry in the rural areas. The growth of urban employment will reduce this percentage over the next three decades, but in absolute terms, the numbers dependent on agriculture will increase.

Preparation of youth for rural living and particularly farming, is a most important part of education. While the formal school system has a vital role, increasing attention is being focused on the training of out-of-school youth in the 14-25 year age group. Those in the 14-18 year age range present special problems because they are generally too young to establish themselves in farming or associated industry. The young adult group (18-25 years), while possessing the maturity, so often lacks training and employment opportunities and it was this group that the 1970 FAO Regional Conference 2/ recognized as requiring "immediate and special attention".

Past and present efforts to provide training for rural youth include:

A. Vocational Agricultural Schools

These, the most traditional approach to rural training, may form part of the secondary education system as in Korea, the Philippines and Thailand, or they may, as in Ceylon, serve as a follow-on to formal education.

The secondary vocational school courses, often residential for 3-4 years, aim to provide a "pre-vocational" training in agriculture along with a furthering of general education, the small practical component of courses being carried out on the school farm. The Practical Farm Schools of Ceylon offer 2-year residential courses in agriculture and allied subjects.

Both types of school aim at training youth for farming, but in line with experience in other developing regions this objective has seldom been achieved. In the Philippines, for example, a survey of the 1965 and 1966 graduates showed that only 15 percent returned to full-time and 12 percent to part-time farming. More frequently, trainees have developed aspirations for "white collar" employment, although in some cases these schools have had a useful function in providing middle-level agricultural workers for the government and private sectors.

Two more recent variations of the traditional agricultural school approach are:

1. The Barrio High School Project

This was commenced in 1971 as a pilot project by the University of the Philippines College of Agriculture. For students in the upper classes of the village (barrio) secondary school, an agricultural course is being developed in which the large practical component (50 percent) is being carried out mainly on the pupils' home farms. Thus, while learning, each is establishing an economic enterprise for the future.

2. The Mobile Agricultural School

In Thailand, the Ministry of Education plans in 1972 to commence using the 22 existing vocational agricultural schools as servicing and administrative centres for a number of mobile units, each of which will be stationed in a centrally located village for a 12-month period. Class work will be limited to 3-5 hours weekly during slack farming periods, the bulk of the time being given to supervised practical work on the trainee's own farm.

To date, probably the most effective use of vocational schools has been achieved where short courses (for example, 1-6 months) have been provided for "out-of-school" youth, usually as a supplement to informal training programmes at the village level. This type of training has been developed in Korea and the Malaysian states of Malacca and Sarawak, in each case to supplement rural youth club programmes.

B. Youth Settlement Schemes

Several countries have developed schemes aimed at the settlement of unemployed young men between the ages of 17 and 25 years. An example of a successful effort is the Ihala Hewessa Scheme in Ceylon. In this, land clearance has been performed communally by the 54 settlers, but individual title will be granted to each. Management expertise has been provided by a government officer for the first five years, but responsibility is being progressively assumed by the settlers through their cooperative society.

In the Pahang State of Malaysia, several large schemes are being established while in Sarawak, one to settle 400 youths is planned. This scheme, based on oil palm production, will eventually be operated as an estate, the settlers being shareholders as well as providing the labour.

While politically attractive, there have probably been more failures than successes with such schemes. Greatest success has been achieved where settlers have been homogeneous socially and culturally, where early financial returns have been possible thus boosting morale and reducing the number of drop outs in the early years, and where adequate infrastructure and skilled management have been provided.

Settlement however requires large capital investment for comparatively small numbers of youth and, therefore, while a useful approach under certain socio-economic conditions, does not cater for the needs of the masses.

C. An Intensive Education-cum-Extension Approach

During 1963-64, this type of approach was developed on the Minnerya Colonization Scheme in Ceylon where it aimed at providing training for school "drop outs" who were already employed, at least part time, on the family farm. Although operating for only 12 months, its potential was apparent and its discontinuance was entirely due to external circumstances.

Under the supervision of two extension officers, agricultural training was provided through both classroom instruction and "on farm" projects. The age range of the 31 trainees was 15-25 years and most had been nominated by their parents to inherit the family farm. During its year of operation 90 days of class instruction were given during the slack periods in farming operations while the extension workers visited each trainee's home project twice weekly. Classes were held in a centrally sited village building and covered topics closely related to the trainees' needs. It was envisaged that an even greater emphasis would have been placed on home projects during a second year, after which trainees would have become the responsibility of the normal extension staff, the specialist trainees moving to another area.

This type of approach has the important advantages that training takes place within the community and it is given to those who already have some commitment to farming and are most likely to use it. Furthermore, trainees are able to earn while learning and the unit cost of training is low, as in Ceylon where it was one-third of that of the traditional vocational schools. While availability of trainers would limit the degree to which this approach could be used to reach massive numbers of rural youth, it has considerable potential and warrants further development and incorporation in a total national plan for rural youth training.

D. The Youth Mobilization Schemes

While not always directly providing training for farming, the Youth Mobilization Schemes attempt to involve large numbers of unemployed rural youth in training programmes associated with development projects (roading, dam construction, etc.). In Ceylon, a two-phase scheme was planned although, so far, only the first phase has been implemented.

Phase I was a National Service Scheme which aimed at involving youth on a daily basis in projects in their home locality. Participants were paid a small daily allowance, part of which was retained to form a loan fund to assist them in the establishment of their own enterprises. Attendance also resulted in the awarding of "credits" which were to enable participants to proceed to -

Phase II: a Residential Training Scheme by which vocational skills were to be taught. In 1971, it was planned that this phase would be carried out in a camp situation, rather than in residential schools.

During the 12 months of operation of Phase I, 40 000 youths were involved with an average daily attendance of 25 000. Works valued at Rs. 2.9 million were completed.

This scheme has demonstrated that the youth mobilization approach can be effective in involving youth in national development, in stimulating a national consciousness and it may help motivate them toward self employment in farming. Experience in other developing regions has been that on completion of training, the basic problem of employment remains for the majority of participants.

E. The Rural Youth Club Approach

Many countries in the region have developed Rural Youth Movements based on the village youth club where the programme usually follows the 4-H or Young Farmers Club pattern. The age range of members may extend from 10 to 25 years in some clubs, but there is a move to divide into Junior (10-15 years) and Senior (16-25) sections. While the emphasis is on agriculture, homemaking and related vocational skills, clubs aim at developing other areas of life (social, physical, civic and cultural) and all are directed at involving youth in rural development as well as preparation for rural living.

Group and individual economic projects on the home farm or community land are a central feature of programmes and most clubs expect members to participate in one or both of these.

Initial capital for projects is important and means of providing this are as follows:

(a) Short-term loans - from the club, government or private sectors. In Korea, the Office of Rural Development gives this type of support to 4-H members.

(b) Government supplied or subsidised inputs as in Malaysia 3/ and Ceylon 4/ respectively.

(c) Livestock chain systems whereby initial stock is provided and a proportion of the progeny returned to the stock pool. This system is operated by the Philippines 4-H Movement.

Marketing is another common problem. In the Philippines, mini cooperatives are encouraged at the club level, these being affiliated with the National 4-H Cooperative which acts as both adviser and wholesaler.

An important feature of the more successful rural youth club movements is the opportunity they provide for further training. This may be by means of:

(a) Short courses to provide training in leadership as well as specific agricultural or related skills. In Korea, for example, 23 institutions have been established to provide training in farm mechanization to 4-H members who have satisfactorily completed 3 years of club work.

(b) Apprenticeship schemes by which club members gain experience on improved farms. The Korea 4-H movement placed 1 000 on farms for 3-month periods during 1970.

(c) Farm youth exchange schemes by which selected young people, usually club leaders, live and work with farm families overseas. Most exchanges have been with the United States 5/, but an Asian Youth Exchange Programme is now effecting exchanges within the region.

In Ceylon, India, Korea and the Philippines, rural youth club organization and supervision are government functions,usually being the responsibility of departments of agriculture, rural or community development. Non government-sponsored organizations also play an important role in some countries. In India, the Young Farmers' Association provides valuable support to the Government's youth programme, while in Indonesia the Gerekan Pramuka (Pathfinder Movement) is the country's main youth organization. It is a dynamic movement, its structure and programme being an adaptation of boy scouting to national conditions, traditions and aspirations. As in scouting, it is divided into four age groupings, the most active of the senior groups being the Taruna Bumi (Sons of the Land) section and this has become an important instrument of change. In East Java, for example, it is used by all extension agencies to implement rural development programmes.

The rural youth clubs movement has great potential as an "on farm - in community" approach to rural youth training. Because of the large voluntary element, it can be operated on a large scale at low cost compared with other approaches. Through economic and community projects, young people are not only able to contribute to their personal welfare but also to national development. Furthermore, its social and cultural activities help to make rural living attractive to "educated" youth.

Manipulation of movements for political ends is a danger as is also the possibility of youth groups accentuating the age - education gap with adults. Neither danger can be completely eliminated but each can be minimized by involving a wide cross-section of the adult community as leaders or advisers at all levels, from the local club to the national council. In any case, the risks involved are less than providing no economic and social outlets for rural youth.

Approaches for the Future

Since the traditional institutional approach to training for farming cannot cope with the massive numbers of young people who must eventually find a livelihood in rural areas, and in fact achieves very limited success with those it does train, informal approaches will be required. That with the greatest potential for coping with the numbers at an acceptable cost is likely to be the rural youth club approach supplemented by specific short-term training courses. The intensive education-cum-extension approach should also be of value in many countries. Training alone, however, will not produce viable farming enterprises. Other factors such as the availability of land, markets, input supplies and adequate extension follow-up will determine the extent to which training can be effectively used. Only when programmes are an integral part of national development plans is the necessary support likely to be provided. And only then will the support of national leaders be obtained - often a vital factor in obtaining public acceptance of informal approaches to education.

1/ Excluding Peoples' Republic of China.

2/ Tenth FAO Regional Conference for Asia and the Far East, Australia, 1970.

3/ Malaysian Association of Youth Clubs in Malacca State.

4/ Young Farmers' Club Movement.

5/ Under the International Farm Youth Exchange Programme.

TRAINING AND EXTENSION FOR EFFECTIVE USE OF IRRIGATION WATER

by

Wajih D. Maalouf

Training of farmers becomes more and more a limiting factor in improving agriculture in the Near East region. Improved farming methods and techniques and, more particularly, the diversification and intensification of agriculture, made possible by irrigation, have created a pressing need for new information and skills which cannot be acquired except through organized training and continuous advisory support supplied by qualified technical staff. It is intended in this paper to focus attention on the need for farmer training to ensure effective use of irrigation water which is considered the main element in any effort to improve agricultural production.

The Near East region in general is characterized by low to medium rainfall which is inadequately distributed throughout the year. This climate necessitates, in most countries, the use of very extensive and simple systems of agriculture which are unable to meet the continuously widening food gap in the region. Any attempt to change cropping patterns and develop agriculture should be considered with irrigation as its focal point.

Governments of the region give first priority to the construction of new irrigation projects and the improvement of existing irrigation schemes. Budget allocations for irrigation vary from 36 percent in Iran to around 80 percent in Syria of the total public investment in the agricultural sector. The Indicative World Plan for agricultural development supported this trend by proposing an addition of 3.7 million hectares by 1985 to the area served by modern irrigation. But it must be accepted that the success of irrigation depends not only on the provision of water in the field. Many other important problems have to be solved before irrigated agriculture becomes profitable.

Apart from the technical problems of irrigation - effective use of irrigation water, crop water requirements, critical stages of soil moisture stress, irrigation methods, drainage, water and soil salinity, and various technical and management problems - we must consider the human factor, the farmer who has to carry out this operation. For what ultimately counts is the farmer's knowledge and actions in the field. The provision of trained farmers and experienced technical staff are just as important as the irrigation water running in the canals.

Modern irrigation techniques require farmers who are equipped with technical skills and who can provide and adequately use farm inputs and apply suitable methods of farm management. Modern irrigation does not fit in with inherited agricultural methods nor does it tolerate negligence and technical mistakes. With irrigation, farm investments are much higher and serious mistakes may result in heavy losses. Government advisory services must be available to backstop farmers in solving problems which vary in magnitude and nature.

Problems Created by Necessary Changes in Behaviour and Work Habits of Farmers in Newly-Irrigated Areas

Another type of problem arises in newly irrigated areas related to farmers' behaviour and work habits. The change in agricultural pattern and methods brought about by irrigation necessitates corresponding changes in the type of work, farm management practices, etc., and disturbs the seasonal distribution of activities already established in the community.

Values of farm communities also undergo some changes. Before the introduction of irrigation, farmers adapted to their work in dry farming,which is in general characterized by seasonal activities, leisurely action, simple cropping methods and a great dependence on climatic conditions. Once the irrigation water is in the canal more work is required. Irrigation ditches must be built and new crops grown. Land may be cropped two or three times during the year. Time becomes more important. Farmers cannot take the risk of putting off the work of today until tomorrow; they have to be more exact with regard to timing agricultural activities, especially in the application of fertilizers or the control of pests and diseases. Daily observation, quick actions, planning of work activities, self-dependency and faith in technical knowledge become essential.

Problems Created by New Needs

In addition to the technical and behavioural aspects, irrigation creates new financial and organizational needs - additional production inputs, more markets and marketing facilities, establishment of farmers' associations. Farmers organized in state or private cooperatives or associations obtain production inputs, fertilizers, pesticides, equipment, farm machinery, credit, etc. under more advantageous conditions.

An extension training programme carried out by qualified staff of a well-organized advisory service, in cooperation with extension and research staff in the field and backed by responsible officials, is a most effective means through which the farmers become aware of their problems and learn skills for their solution.

Present Situation in the Near East Region with regard to Trained Staff

With the exception of one or two countries, the situation in the Near East region can be described as follows:

Inadequate Number of Trained Personnel

The number of trained personnel is very small especially those who have acquired, in addition to technical background, special training in adult education methods and facilities for transmitting information to farmers in the field. The Indicative World Plan for Agricultural Development gives alarming figures for the average ratio of extension agents to farm families, viz. 1 to 8 000. The minimum desirable level is approximately one extension agent to 1 000 families. In areas where intensive agriculture is possible, one field worker cannot work effectively with more than 400-500 farm families.

Level of Training

Standards of training in some countries of the Near East region are unsatisfactory. Pre-service training programmes do not lay sufficient emphasis on practical technical work, on farmers' behaviour, or on methods for dissemination of information. There is also much to be done in orienting the contents of these programmes towards major local problems, and in methods used in their implementation. The importance of integrated extension programmes, packages of technical advice and assistance through cooperatives, marketing and credit facilities, are not given sufficiently high priority in planning extension training programmes.

Staff Training

When Staff Training should Start

In areas where new agricultural projects are under construction, training must begin before the irrigation project is completed and water becomes available for use. Operational irrigation schemes in other areas of the country can be used as demonstration sites to train personnel who will work in newly-established irrigation projects.

Who are the staff to be Trained?

People responsible for farmer training and who need to be acquainted with irrigation aspects and trained in the effective use of irrigation water may be divided into three groups:

a) Senior Officials and Administrators of various Ministries involved in Irrigated Agriculture

This group includes responsible officers who take decisions on general policies, programme planning, budget appropriations, recruitment, etc. The educational programme for this group is not a training activity in the proper sense of the word; it is an effort to make them aware of irrigated agriculture problems and gain their support in finding suitable ways to solve them.

b) Subject-Matter Specialists

Subject-matter specialists and agricultural research staff who on several occasions assume the responsibility of assisting field workers, need to acquire practical knowledge of extension methods and facilities.

c) Field Supervisors and Field Workers

Field supervisors and field workers in this context are put in one category because they constitute together the group which takes the main responsibility for carrying educational programmes to the farmers. Although the training of field supervisors is of a higher level than that of field workers, the substance of the training programmes is almost the same.

Training Methods and Facilities

Training methods and facilities vary with the kind of people involved in the training programme.

High Officials and Administrators

The educational programme for this group may be accomplished through different methods, or combinations of methods. The following combination may be successful in certain situations:

(a) participation in local, national and regional meetings and seminars on irrigation and the effective use of irrigation water, in which the participants present and discuss chosen topics;

(b) visits to well-managed irrigation projects in the country or abroad during which participants observe the results of the proper use of irrigation water and the impact of active advisory services on the improvement in production of irrigated crops.

(c) short visits to personnel involved in farmer training activities which give opportunities to observe the application of training programmes at the field level and become acquainted with the difficulties and advantages of such an effort.

Subject-Matter Specialists

Subject-matter specialists may enrich their technical knowledge of irrigated agriculture through special programmes which include:

(a) close collaboration with research staff in the field and in the laboratories of research stations;

(b) application of research results on selected farms, in collaboration with both research staff and extension field workers, before these results are put into effect in a regular extension programme;

(c) review of research findings in their fields of specialization;

(d) active participation in symposia, seminars, meetings, etc. dealing with topics related to their field of work in irrigated agriculture;

(e) writing extension or scientific papers on major topics of irrigated agriculture;

(f) visiting and studying successful irrigation areas.

Field Workers and Supervisors

Extension field workers in the region are mostly recruited from graduates of intermediate or secondary agricultural schools. It is appropriate to divide them into two groups with regard to training:

(i) Field Workers Presently in Service

It is recommended for this group that training programmes include the following activities:

(a) one-month initial training session on technical problems of irrigation and control of irrigation water. A small part of this session could be devoted to refresher discussions and application of extension and adult education methods;

(b) periodic one-week training sessions devoted to specific technical problems or extension teaching methods;

(c) field applications of technical subjects or extension methods and facilities;

(d) visits to successful farmers in irrigated areas to discuss and observe their agricultural work and management.

(ii) Newly-recruited Field Workers

The training method proposed for the first group is suitable for this one, with the following two important modifications:

(a) The initial training session should cover a three-month period. New recruits have little experience in problems of irrigated agriculture and extension methods. More time is needed to cover the main topics of the two disciplines. Training programmes should devote sufficient time for practical application, in which new recruits are normally weak.

(b) At the end of the initial training sessions, each new recruit should be placed with an extension field worker as an assistant for a period of three months. This gives new field workers opportunities to acquire practical experience under trained colleagues before starting programmes in their designated areas.

For the training of both these groups, it is recommended that training centres be in irrigated areas, preferably at agricultural experiment stations.

Training of future extension field workers should start in agricultural schools. Secondary agricultural schools in irrigated areas should strongly orient their programmes towards irrigated agriculture problems. It is also recommended that the curricula should include courses in extension and rural sociology. Teaching staff in these schools should include personnel of irrigation experiment stations who are familiar with irrigation and water use.

Role of Agricultural Experiment Stations in Technical Staff Training

Agricultural experiment stations can make a great contribution to the training of staff at all levels. They may be used as demonstration sites to show the advantages of proper use of water and recommended irrigation methods to both technical staff and farmers. Research staff may assist in carrying out some parts of the training programme. Needless to say, close collaboration between extension and research personnel is a vital condition for the success of a training programme in general and the development of irrigated agriculture in particular.

Training of Farmers

General Aspects

There is no room for untrained farmers in modern irrigated agriculture. The farmer is the element that makes irrigation projects a profitable investment. With the exception of a very small minority of well-experienced and educated farmers, the farm population in the region has a very low level of education, 40 percent to 95 percent being illiterate. Agricultural occupations are, in general, not looked upon as desirable. Farmers' children try to find other kinds of work. Low farm incomes do not provide for substantial improvement in the living prospects of farm families. However, farmers in the region are receptive to new irrigation techniques and capable of striking improvements in their production standards, given the right incentives.

Although the same educational approach may be used with all farmers concerned in irrigated agriculture, it is helpful to divide them into two different groups:

1) Farmers with some background in irrigation but who have experience in old methods and have acquired working habits and attitudes which will be changed with the introduction of modern irrigation methods and equipment.

2) Farmers who have passed recently from dry farming to irrigated agriculture. For this group the change is great. Technical training in the beginning should be basic and simple. They need to be highly motivated to make drastic changes in their behaviour and work habits.

This distinction between the types of farmer can be helpful in choosing training methods and contents of training programmes for each group.

Methods and Facilities

It needs to be emphasized that the whole operation of farmer training, with all its technical, managerial and behavioural aspects, should be considered as an adult educational process in which motivation of participants, programme content, teaching methods and effective learning are factors for success.

A well-organized motivation campaign should precede farmers' technical training in irrigation. This campaign - an integral part of the training programme - should give farmers the incentives which make them interested in learning new techniques. The following activities could be considered for the motivation campaign:

a) Meetings in farm communities where extension field workers and irrigation specialists explain the advantages of the effective use and control of irrigation water: increase in productivity, irrigating more land, improvement in quality of production, etc. The discussion must be supported by pertinent illustrations.

b) Visits to experiment stations where research staff explain methods of work and results.

c) Use of available facilities, films, slides, posters, radio programmes, to explain the objectives of the educational programmes. In communities where illiteracy is widespread, it is clearly advisable not to use written publications.

Programme Contents

The problematic approach is considered an effective one in adult education programmes. Emphasis is put on common major problems which affect agricultural production. Technical contents should be simplified to meet the understanding capacity of participant farmers. It is recommended that the economic aspects of the problem should be considered as well as its technical aspects. Farmers are interested in the net return of putting the new methods into operation.

Methods

Understanding and adopting recommended practices are the main objectives to be accomplished. It is of great importance to choose the combination of methods suitable to each particular situation, taking into account the level of education of farmers, availability of training facilities, proper timing, financial expenses involved, etc. There is no standard formula for methods which can be applied in all situations. These are a few suggestions for consideration:

a) Result Demonstration

The result demonstration is an old extension method but still the best one to start with in situations where most farmers have low educational attainments. It gives farmers opportunities to see, observe, discuss and evaluate results and learn new techniques by applying them. Although it is preferable to conduct result demonstrations in the field where farmers themselves work, experiments carried out in research stations may also be used as demonstration sites.

b) Farmer Training Centres

Farmer training centres need not be large expensive buildings equipped with all teaching facilities. The programme can be carried out in a modest meeting room near an experiment station, if possible, or in a community meeting place where 20 to 30 farmers can come together and discuss particular problems with technical staff. Practical work may be carried out on the experiment station fields, community land or

Training programmes in these centres include short courses (1 to 5 days) dealing with specific technical problems, such as recommended methods of irrigation, fertilizer application, pest and disease control, maintenance of irrigation schemes and canals, control of irrigation water, etc. Training courses can be given to illiterate farmers through discussions, practical applications, drawings, posters, films, slides and various other audio-visual aids.

Where advanced irrigation methods are used, farmer training centres, especially those established near research stations, are very suitable places to train farmers in the use and maintenance of irrigation instruments, materials and installations.

c) Mass Media

Radio and television programmes, extension publications, extension field days, etc. give effective assistance to field training activities, if they are properly utilized.

d) Elementary and Intermediate Agricultural Schools

Farmers' children may become successful farmers if they receive the proper education:

(i) Youths up to 20 years of age may be given one year's agricultural training with emphasis on irrigated agriculture. Working subsequently with their parents, they influence them to improve their work methods;

(ii) It is desirable that intermediate agricultural schools in irrigation areas put strong emphasis on the various aspects of irrigated agriculture in their curricula.

A MORE COMPREHENSIVE POLICY FOR AGRICULTURAL INSTRUCTION

by

D. Parrot

In recent years, many international symposia have considered the reform of agricultural instruction. Various formulas have been proposed to increase its effectiveness by adapting it to the socio-economic conditions of any particular country. The establishment of guidelines for a comprehensive policy for agricultural instruction may be considered a matter of some urgency.

Any reconsideration of the agricultural instruction system in a country must recognise its three components:

- The training programmes
- The instructional methods
- The teaching equipment

It is clear that careful preliminary planning is needed to determine the number of schools and students in relation to the requirements for agricultural leaders. This aspect of the question has already been extensively covered in the publications of the various UN Specialized Agencies. Now, however, it is necessary to look beyond the present purpose of the schools (basically, the training of the leaders needed by agriculture) to the vast problem of training the farmers and particularly the young country people.

Schools of Agricultural Education

The very concept of the schools implies that our traditional architectural layouts should be revised. It is important that the teachers should work in association with the architects in preparing the school design.

Classrooms of permanently fixed dimensions appear out of date. Modern techniques offer excellent systems of movable partitions which should be used to divide up the total covered area, with the possibility of a variety of different combinations. A single school could thus accommodate classes of various sizes with, as appropriate, small spaces (courses for small groups, refresher seminars, practical biology work, etc.) or very large areas for symposia, large classes, lectures, film shows, adult refresher courses, etc.). The traditional arrangement of the desks in parallel rows should be replaced by their arrangement in a U or a V, thus facilitating discussion between students and helping to break down the egocentric relationship between teacher and pupils and thus increase group participation.

Finally, the school must be appropriate to its aims. It is nonsensical to build expensive and luxurious buildings which make a further contribution to the "uprooting" of the student from his normal environment (particularly when farmers are being trained). The schools must offer the students modern comfort, but luxury is superfluous.

On the other hand, a carefully equipped farm is just as much a necessity as the school buildings themselves. Any construction plan must include this.

Well-designed and well-equipped schools, an adequate operating budget and reasonable numbers of students (a maximum of 30) per class are the primary conditions to be fulfilled before consideration is given to the actual content of the training programme.

The Training Programmes

We may say that five rules must be applied to establish training programmes appropriate to the socio-economic realities of the country.

1. Any training programme must be based on an analysis of the tasks to be performed by the trainees. Three questions should be asked:

   - What will the leader do when he leaves the school?
   - What are the aims of the training in order to fulfil these tasks, in terms of knowledge and ability?
   - What programme should be adopted to achieve these aims?

2. Analysis of the tasks, determination of the aims of the training and, finally, the programme must be carried out by a joint commission including instructors and prospective employers. It is in the interests of the latter to have leaders who are well-trained when they leave the schools. The collaboration of the employers in the commission's work will determine the best possible adaptation of the programme to employer requirements.

3. The programmes must be capable of adjustment rather than be hide-bound. The joint commission must take care to keep them up to date with developments in the country's economy which may result in changes in the type of posts occupied by the leaders.

4. Since the school must pay ever-growing attention to the individual work of the students, free time must be allowed in the timetables and too much book learning must be avoided. The programme must be limited to what is necessary for the proper fulfilment of the tasks for which it is providing preparation. As agricultural instruction is professional training, possible equivalences with the diplomas of the national education system (sometimes necessary for the public services) must in no case result in weakening the programmes by adding general education. This is only justified to the extent necessary for the understanding of the technical disciplines. Beyond that, it results in useless overloading of the timetables.

5. There is an urgent need to increase the human aspects of agricultural instruction (extension work, sociology, communication with people). The technician must be capable of passing on his knowledge to the people in the country. The school should prepare him to do this. Training in economics (management, accounting, rural economics) must, moreover, be stressed more and more. In the final analysis, the relative proportions of the various sections of the training will depend on the role allocated to the leader when he leaves the school.

These five rules should lead to rationalisation of the training programmes which are often established in an almost entirely empirical way.

The Instructional Methods

The principles of active instruction must be used in a teaching programme: the student must "actively" participate in the class work and not undergo his training "passively". Instead of the authoritarian relationships between the teacher and the taught, the instructor will have to act much more as the group's moving spirit rather than as the all-powerful master. The instructors must therefore be prepared for this new style of teaching by instilling in them knowledge of adolescent psychology, group dynamics and modern teaching methods.

Three methods of training the instructors are suggested, each of which is complementary to the others:

1. The establishment of a one-year course in teacher training, leading to a certificate of competence in agricultural instruction, to be compulsory for any new instructor appointed to an agricultural school. (The instructor having already completed his technical training and preferably having had some field experience).

2. Periodical refresher seminars (at least once a year), at different levels, on specific teaching subjects.

3. Visits to the schools by specialist and experienced teachers in order to observe the instructors at work and to advise them on possible improvements [1].

In conclusion, we should add that it would be to countries' advantage to establish the status of the instructor as offering substantial material advantages in order to attract the élite of agricultural leaders towards this career. Strict selection should, moreover, make it possible to retain in the teaching body only those instructors whose morale and professional integrity make them high-class educators.

The Teaching Equipment

A good programme, taught by a well-trained instructor using modern teaching methods also needs appropriate teaching equipment to facilitate getting the message across (handbooks, data cards, sets of slides, flannelgraphs, models, collections, films, video-tape television, etc.).

If this equipment is to be prepared in collaboration with the instructors and the employers, it clearly cannot be considered on a single school scale; it is therefore worthwhile setting up audio-visual manufacturing centres on a country or group of countries scale. Every attention should be paid to this urgent task.

Whether it is a question of amending the programmes, training the instructors or manufacturing teaching aids, only a specialist service, operating comprehensively over all the components of the educational system, can succeed in making any worthwhile improvement. This involves a team of specialist teachers with adequate equipment and taking action at all levels of the training pyramid from the farmer up to the agricultural graduate.

There is no longer time for minor reforms without lasting effect which, in the long run, become very costly. A clear and all-embracing view is needed of the aims, as well as the constitution of the teams to achieve them within the scope of the national specialist services.

Two years' experience gained at Yaoundé by the Rural Teaching Division enables us to say that the highest hopes of success are justified if there is the serious will to implement this policy. Now that the second decade of development is looking for ways of increasing productivity, agricultural instruction must be made worthy of its mission.

- It is the role of a teaching service.
- It is the aim of a policy.
- It is the duty of those responsible for development.

---

[1] See "L'observation pédagogique" by D. Parrot ("Promotion rurale", No. 44, Mars-Avril 1972, B.D.P.A., SEAE, Paris, Page 8.)

PLANNING IMPROVED CURRICULA FOR VOCATIONAL AND TECHNICAL AGRICULTURAL SCHOOLS

by

D.W. Martens

Agricultural teaching in many of today's vocational and technical agricultural schools has come under criticism for its failure to train manpower of the kind and quality needed to develop and service agriculture. Much of this criticism is undoubtedly deserved, for even a casual examination of curricula reveals teaching programmes which are really out of touch with modern agricultural technology and development.

The schools criticized are the very ones that countries depend upon to train the bulk of their agricultural personnel. Most countries appear to have at least one such school and some have more than a hundred. The countries of the Near East and Latin American regions have about ten schools per country. In Africa the number is about seven, while in Asia and the Far East the numbers run much higher. Improving curricula is therefore of prime importance to almost every country.

What has happened to these schools which over the years have played such an important role in supplying trained agricultural personnel? Observations over some fifteen years point to several conditions that have prevented teaching programmes from keeping abreast of the times.

Many of the original aims and purposes of the schools are as relevant today as they were. All have similar patterns of operation. In general, they have one or two courses of study spread over one to three years; a syllabus prepared by ad hoc committees of technical agricultural officers; examinations prepared and graded by outside examiners; poorly trained teachers who change jobs frequently; inadequate teaching facilities and equipment; and very little supervision except in financial matters.

Although results have varied from place to place, it is easy to see why training programmes have lagged further and further behind agricultural development. One of the reasons for this continuing deterioration was the system itself. It had no built-in mechanism for bringing about change. It was very much a case of no one being responsible. For example, the ad hoc syllabus committees, while doing their best, relied heavily upon their own technical training and experience in fashioning courses and once the syllabus was drawn up they had no responsibility for keeping it up to date.

Likewise, the teachers who are the key element in better training were seldom involved in determining what to teach, so they felt no responsibility for developing a better curriculum.

Under these conditions syllabuses became crammed with theoretical content unrelated to field job responsibilities and teachers became frustrated and discouraged because they were forced to cover a syllabus for which there was insufficient teaching time. In addition, their success was judged by the number of students passing the examinations.

Generally, the supervisory function was added to the full-time responsibilities of officers occupied in other technical fields, so they had little time to look into such matters as curriculum and teaching methods.

In the beginning this did not matter very much as most graduates joined the government services and the jobs to be performed were fairly routine and mostly of a regulatory nature. It was, therefore, easy to learn the work by being on-the-job. In later years, however, the work changed and expanded to advising farmers on fertilizer usage, agricultural credit, insecticides and a host of other similar matters which arose through advances in agricultural technology.

The officer's job had changed in character and he needed to acquire skills and knowledge about new agricultural methods and practices. But, unfortunately, training programmes remained the same as before.

In the circumstances, is it any wonder that intermediate-level education in agriculture has attracted criticism?

What to do?

As a result of the importance attached to technical and vocational agricultural education in the development process, urgent action is needed by many countries - in assessing training needs, reviewing the purposes and functions of existing schools and re-shaping training programmes along more realistic lines.

There are several ways of tackling this task but one of the more useful and productive methods is by the organization of national workshops, the main objective being to arrange or create a situation where all concerned with the curriculum can engage in a free interchange of ideas.

What is taught and how it is taught is the central consideration in the process of bringing about improvements. Curriculum planning, therefore, merits the serious attention of teachers, administrators and government officials alike to ensure that a proper mix of subject matter, learning activities and practical experience are provided in the instructional programme and taught in a manner that will develop the right attitudes, relevant knowledge, practical skills and the abilities and understanding required of young men and women entering employment in the fields of agricultural and rural development.

Teachers, principals, administrators, supervisors and appropriate representatives of agencies and organizations, as well as community leaders who utilize the products (the students) of these schools, should be involved in these deliberations.

The workshop approach concentrates on problem-solving methods and encourages individual participation through small discussion groups. The cost-benefit ratio is extremely favourable. The cost is small compared with benefits such as more practical and relevant curricula, more enthusiastic teachers employing better teaching methods, and substantial improvement in communication and relationships between teachers and administrators.

FAO has cooperated with a number of countries over the years to conduct national workshops on teaching methods and curriculum planning. Recently, for example, workshops were conducted in Ceylon, Malaysia and Thailand with excellent results. In each case, an improved curriculum was developed and put into use in the schools.

Collecting Necessary Information

Regardless of methods employed in revising and reshaping the curricula of agricultural training institutions, certain kinds of information must be collected. Basic to curriculum planning is an intimate knowledge of the agricultural industry, agricultural business and the services which support agriculture. Information on the major crop and livestock enterprises, agricultural practices, size and number of farms, soil and climatic conditions, agricultural policies, education, extension and research facilities and other similar institutional services, must be taken into account by curriculum planners.

Information must be assembled on the kinds of personnel needed for agricultural and rural development along with a realistic assessment of employment opportunities and the government's ability to absorb agriculturally-trained personnel. Job opportunities must be described and a detailed listing made of duties, operations and skills necessary to perform a specific job. To be useful, these must be organized in logical sequences so that they can be used for teaching, employment or classification purposes.

To have up-to-date information on occupational opportunities, agricultural manpower surveys should be undertaken. These should cover all agricultural activities (agriculture in its broad sense) including both the governmental and private sectors, and related businesses and services. The main objectives of the survey should be to identify the numbers and levels of trained personnel needed, to estimate future requirements and to evaluate agriculture's absorption capacity.

The preparation of job descriptions may be a formidable task as it requires interviews with employers and employees. Finding out what employers expect of employees and what employees actually do may reveal differences which will have to be resolved before curricula can be planned.

Agriculture lags far behind industry in these matters and vocational technical schools have often suffered criticism because they are not providing suitable training for the jobs to be done.

Planning Curricula

Vocational and technical agricultural curricula cover a wide spectrum of training, and curriculum planners must be sure of the levels and kinds of training being discussed.

Technical agriculture is an inclusive term which embraces a cluster of agricultural occupations in the scientific, mechanical and technical aspects of production, distribution, manufacturing, use, processing and marketing of farm products.

Training of this type is usually given in technical agricultural schools, institutes and colleges,and students finishing their training receive either a certificate or a diploma depending upon the level of instruction. In general, these schools are vocational in objective, technical in subject matter and usually terminal in character.

Agricultural courses are also taught in many general secondary schools where the subject is frequently referred to as vocational agriculture.

Some of these schools claim to be training for farming which could be true if designed for a small selected group of students. It is not, however, a realistic objective for all rural students or even for all farm boys.

The farm provides the basis for courses in agriculture in the general secondary schools but consideration should also be given to courses that appeal to students who are not specifically interested in production farming.

The courses occupy a unique place in the rural areas and can contribute a good deal to agriculture and rural development, especially if designed for the communities they serve. In general, they are more basic and general in nature than those which would train for technical agriculture. Nevertheless, to be effective, they must be continually revised to meet the changing needs of young boys and adults in the community.

When planning curricula for technical agricultural schools, as opposed to general secondary schools, planners must provide for enough flexibility to adapt them to the agricultural occupational requirements of the country.

Since institutions with single-track training courses are easier to plan, consideration will be given here to schools with multi-track training programmes. Curricula are needed for a group of courses or a sequence of subjects providing the necessary knowledge and skills required to perform specific agricultural occupations.

Cluster Technique

The curriculum planner must translate information obtained from the various sources into training courses. To begin with, job titles relating to similar areas of work may be grouped together into what might be considered families or clusters of jobs. There may be as many as six, seven or more job titles in a cluster and could include occupations related to animals, crops, agricultural machines, agro-business, agricultural services and the like. For example, agricultural teachers, technical agricultural officers and extension workers have some areas of training that are common to each. The same would apply to animal husbandry workers, animal health officers and animal laboratory technicians or those engaged in machinery operations, sales and services.

The cluster technique will not always result in perfect groupings but it is a useful exercise for combining training requirements and for minimizing the number of courses offered and thus increasing teaching efficiency and reducing instructional costs.

Job descriptions provide the clues as to what to teach but planners must decide which knowledge, skills and abilities are common to all courses in a cluster, and which must be taught in other courses.

Decisions on what to include in courses involve the judgements of individuals, some of whom may have certain biases, thus procedures must be established to minimize their effects upon training courses.

One way of minimizing individual influences is to involve a number of people in the decision-making process, and it was for this reason that it was suggested earlier to form a group including teachers, administrators, supervisors, employers and other people concerned.

To keep course planning on the right track, a set of course objectives should be written out in specific and measurable terms so as to guide teachers in what to teach and to inform students of what they are expected to learn from the course. Time for instruction is limited so that choices have to be made between subject matter which is merely desirable to teach and what is essential.

By assigning a lesson topic to each teaching day one can easily see what choices have to be made.

Those concerned will have to decide how much theory to teach and to what depth of understanding, how much practical training there should be and which lessons are to be conducted in the classroom, laboratory, on the farm, on the job or through in-service and short courses. The best guide in making these choices is the course objective and what the trainee will do after leaving school. By testing all lessons against these factors, $\frac{1}{2}$ teachers can eliminate the less important subject matter and have the right blend of theory and practice.

Five Factors

In planning a teaching programme, the planner should be guided by five major factors:

a) The purpose for which the teaching programme is offered, its aim.
b) The characteristics and needs of those who are to take the course.
c) The educational environment of these persons.
d) Sources of information available.
e) The requirements or demands of the vocation, or other use to which the learning is to be put.

THE IMPORTANCE OF PRACTICAL TRAINING

by
J.O. Cherrington

Let us start with the premise that much of the world's agricultural land is under-farmed and therefore production is well below its reasonable potential. This is mainly concentrated in the developing countries. The reasons are either lack of knowledge of farming techniques or, more commonly, the lack of economic inducement. I would not go as far as to say that countries with the highest food prices necessarily farm their land the best, but it would be true to say that if prices are low farmers do not have the means with which to improve their farming.

In Argentina, for instance, where the soil conditions are some of the best in the world, wheat prices to growers are among the lowest, and wheat yields are usually lower than in any other comparable country. On the other hand, the high prices guaranteed for wheat in India and Pakistan have, as much as anywhere else, guaranteed the success of the Green Revolution in those countries.

It follows, therefore, that the first principle of technical aid for farmers should be to set up conditions in the country concerned under which farmers can earn an economic, as well as a subsistence, reward for their labours. This is far from easy. Particularly when the produce of a number of countries is deliberately kept out of the world's markets because some of the richer countries, which should be in a position to accept the exports of the developing world, refuse for various reasons to do this.

But in spite of this excuse, there is no doubt that in almost all the developing countries I have visited, the main reason for poor production is that governments lack the necessary policies for agriculture. They do not provide the right economic climate for farming progress.

This leaves us with the problem of how to make the best use of technical aid in these circumstances. Before discussing this further, it is well to remember that farmers in almost every country make use of established techniques which have stood their ancestors in good stead for many centuries before the developed world existed.

Maize, for instance, has been cultivated in Central America for several thousand years. Whole communities depend on the crop, and while undoubtedly the use of hybrid seeds and new methods of cultivation can improve yields, great tact is needed to persuade local farmers of the benefits to be gained from the new techniques. There is an enormous difference in philosophy between the chair-borne scientist and the man behind the plough. It is a gap which is almost impossible to bridge, unless the scientist is prepared to come away from his laboratory and experimental farm, and work on the land under the same conditions as do the farmers whom he is trying to help.

One can tell a man he should perform a number of operations to ensure a reasonable crop, but the message will be largely lost unless he, the adviser, can get out on the land and show the farmers how to do it. This suspicion of the academic is not confined to the developing countries. It exists everywhere and it is foolish to ignore it.

For this reason, I doubt very much if experimental or demonstration farms in the traditional pattern are much good. I have seen them all over the world and they are almost always similar. Plenty of whitewash and bright paint, tidy farming and ample labour, machinery and fertilizers with which to put right any deficiencies. They do not in any way equate with the conditions with which the farmers they are trying to teach have to contend. It is no use,for instance, showing a farmer how to grow his crop with tractor power when all he has at home - or is likely to have - is the power of himself and that of his wife, helped out perhaps by an emaciated cow.

All demonstration work should be carried out with the same resources as are available to local farmers. If only second class cows and poor seeds are available, the project should start on that basis. A notable example is the dairy research at Moor Park in Ireland, where the examples are closely related to the possibilities available to the small farmer. The same applies in New Zealand at Rua Kura. It is significant that in the world's wealth league, both New Zealand and Ireland are well down the table. Good research is not merely a matter of spending money.

It is essential that the adviser in contact with the farmer should be a man whose basic training is intensely practical. One of the great weaknesses of the scientific establishment in many countries is that the highest rewards go to the administrators and to the laboratory chiefs. Work in the fields is all too often something handed to the newest recruit whose major aim, if he wishes to improve his own living standards, must be to escape into the higher echelons. Those who form the link between science and practice should be accorded higher status and rewards than at present. This is painfully clear but little has been done about it up to the present.

I have visited agricultural advisers in a great many countries and have found a regrettable lack of understanding of the benefits, even in terms of job satisfaction, of grass-roots work. What scientists tend to forget is that one can farm perfectly well without a scientific qualification, but a scientist cannot farm successfully without a basic technical knowledge of the elements of practical farming.

This point is worth labouring because there is tremendous criticism in many developing countries, and some of the developed ones as well, of the gap between the scientist and the man on the land. This is a false distinction which has undoubtedly constituted a brake on agricultural development.

It must be remembered that in dealing with farmers in developing countries, the adviser is dealing with people, often illiterate, who have a background of inherited custom about farming methods. These farmers are unlikely to take much notice of lectures or printed leaflets, or even of experimental plots. The more illiterate - I do not say ignorant - the farmer, the closer to the farmer the adviser must work.

In this connection I was very impressed when I visited the Puebla Project in Mexico, run by the Rockefeller Foundation. Farmers had been taught at grass-roots level to introduce new techniques for maize growing, which had doubled or trebled yields. This necessitated little investment except in transport for the advisers who were first and foremost practical men who demonstrated to farmers that by changing the sequence of their traditional cultivations they were able to get the desired results. No farmer had to spend any more than he had been used to previously; he had to buy no more fertilizer and the hybrid seed was, in any case, becoming available.

Fortunately, maize prices were reasonably good, otherwise a wholesale increase in maize yields might have caused very considerable economic hardship through a fall in prices.

The method used was simple. One or two farmers in each village were chosen to demonstrate the new system and act as local leaders. They were paid enough to overcome their fear of loss from the new ideas. Their neighbours soon followed suit once the leaders had seen a season through. The results in increased production and in what might be called job satisfaction were enormous. Visiting this project was one of the most encouraging experiences of my life.

This is a lesson that can be applied in many countries. But it really means, in essence, standing the traditional training of agricultural scientists and advisers on its head. Instead of concentrating on the scientific aspect of husbandry, most agriculturists should have a training which is heavily biased towards practical farming. I would go as far as to say that, while one can train any intelligent person to be a biologist, soil scientist or what you will, it is extremely difficult to train even an intelligent person to understand the processes of cultivation, irrigation and animal husbandry in practical, not scientific, terms. As far as I know, there are no establishments teaching these arts at any but the lowest levels and that is where the fault lies.

If, at some future date, a salary structure could be evolved in which the highest payment was to the man in the field while the office work was done by the newest recruit, some success in world food production could well be achieved. But even if this reform were brought about, it would be more than useless, as I said in the beginning, unless governments make it possible for economic farming to survive.

ADULT EDUCATION FOR RURAL DEVELOPMENT*

by

D.L. Umali

Until recently natural resources were considered the focal point of development in in the developing countries. After long-denied appreciation of its importance, the logical focus of development has shifted now to human resources. This is appropriate, for there is an abundance of human capital in the developing world which is not being utilized.

Human resources are the most important factor in rural and agricultural development and their condition may well determine the progress of the agriculturally-based economies of developing countries. Apart from the obvious importance of education and training in agriculture, the influence of adult education in general in rural areas deserves far more serious attention than it has received up to the present.

Many adult education programmes are based on the foundations laid by formal education at the elementary and secondary levels. However, in many of the developing countries, adult education programmes have to operate where the majority of the participants are illiterate or semi-literate. The segment of the population needing adult education and training geared to rural development is very large and possesses a wide range of educational backgrounds and farming experience.

A national programme of agricultural education and training that neglects the training needs of the greater bulk of the rural population - that is the adult farmers and rural homemakers - is like a car running with its brakes on. Its effectiveness in enhancing agricultural and rural development is seriously inhibited. It is committing a grievious sin of omission. It deserves to be accused of merely "playing" at agricultural education.

A cursory look at agricultural education and training in the developing world reveals that the general adult education aspects have received the least attention to date. At least three situations may have contributed to the sorry state of affairs.

1. Inadequate understanding and appreciation of the true extent of the need for adult education and training in agriculture

In the overall programme of agricultural education and training in the developing world, the need to promote farming proficiency among adult farmers has not been properly appreciated. Effort and funds have been devoted almost exclusively to the formal institutional programmes of agricultural education for those who are prospective farmers. Meanwhile, adult farmers - whose farming proficiency directly affects the current national agricultural productivity - receive little attention, except from the agricultural extension services.

---

* Extract from a contribution to the Third International Conference on Adult Education, July 1972, in Tokyo, Japan.

2. Differences and complementarity between agricultural education and agricultural extension are inadequately recognized

Ideally, education should constitute an important function of agricultural extension workers, but in most developing countries they spend the majority of their time providing production supplies and services to farmers. Factors contributing to this neglect of the educational input to rural development include administrative pressures for quick results and a very low ratio of extension workers to farm families (often 1 to 5,000). However, perhaps the principal reason is that few agricultural extension workers receive adequate training in the principles and methods of extension education over and above their technical training. The result is a general neglect of adult farmer education; and the poor farmer gets the blame. He is accused of being non-receptive to innovations. The real culprits, however, are those responsible for planning programmes of education and training for adult farmers which are related to their needs.

3. The need for institutionalizing and coordinating adult education for farmers

Recognition of the urgent need for education of adult farmers implies its organization. The first step is the identification of existing government or other institutions which should undertake adult education programmes for farmers. Agricultural universities and colleges, vocational agricultural schools, community schools, agricultural extension and community development agencies, and the mass media all have their respective roles to play in a concerted programme of adult education and training for the rural population. Each agency needs to define those aspects of adult farmer education it can best perform and develop a coordinated approach with the other contributing agencies.

Rural Non-Formal Education Programmes

Formal education systems are the backbone of the educational endeavour in all countries of the world - although a large proportion, particularly in the rural sector, in fact remains untouched by them. It is essential, therefore, especially in the developing countries, to supplement this system by the promotion of non-formal educational activity. In many countries the expansion and qualitative improvement of formal education (primary, general secondary, technical, etc.) is limited by high costs (both capital and recurrent), and insufficient numbers of qualified teachers. The advantages of education programmes for adults and youth through agricultural and home extension, community development, farmers' organizations, women's and youth clubs, etc., are such that they can reach large numbers. Programmes are more easily adaptable to needs of particular groups and areas and costs are lower. The staff and organizational networks of these exist and only wait to be further developed by adult educationists. All relevant institutional and programme resources should be mobilized and related to rural development strategy, planning and programmes.

Emphasis needs to be placed on training of staff (pre- and in-service) engaged in rural non-formal education and on the training of local leaders. Special attention must also be given to the problem of school leavers and semi-literate and illiterate youth (age 14-18 approx.) Communication media, such as radio and television also have an immense potential in relation to development.

Although much emphasis has been placed on the need to develop non-formal approaches, we are today left wondering if we really know to realize them. Some encouraging results have been achieved but we have not been too successful so far in developing non-formal educational activities tailored to the requirements of the developing world, over a large area. Much more innovation and experiment is needed in this field.

Forms of Adult Education for Rural Development

The agricultural extension services, despite their imperfections in many developing countries, still present one of the most widespread and suitable systems for adult education. Too frequently, however, the scope they have to promote adult education in the broad sense is overlooked by educators and policy makers alike. As the content of an adult education programme must meet the personal interests of those participating, it is only logical, in a basically agricultural society, that the acquisition of improved farming techniques is of great importance. But the provision of a wider training for agricultural extension staff may be one of the best ways to promote a useful adult education programme in many of the developing countries of the world.

The farm radio listener/discussion group, or farm radio forum as pioneered in Canada and now being successfully practised in many countries of the Asian region, particularly India and Indonesia, has proved to be a valuable vehicle for adult education. The small discussion group has long been recognized as one of the most effective techniques for adult education leading to group consensus and action.

Primary school teachers are also frequently seen as potential adult educators. However, in rural areas, they are able to conduct adult education courses only if they themselves have the right attitudes towards rural life in general and farming in particular. To prepare them for this "beyond school teaching" function, it will be necessary to develop specific programmes to effect attitudinal changes. If this can be done, it will not only enhance adult education, but will have an immediate spin-off efect on primary educational programmes in rural environments.

FAO's Policies and Programmes in Support of Rural Development Through Education

FAO bases its approach to rural education on the general policy guidelines laid down by the World Conference on Agricultural Education and Training, held in Copenhagen in 1970. This conference was convened by FAO in association with Unesco and ILO and was the first occasion at which leading government representatives in the field had come together to discuss the major issues ahead. Also present at Copenhagen were a number of non-governmental organizations, such as the International Cooperative Alliance, the International Federation of Agricultural Producers, women's groups and youth organizations. Apart from setting the sights for governments and agencies for the Second Development Decade, the conference opened a new chapter in relationships between the three agencies in this field.

FAO's objective is to assist rural development through education. This means it must be in a position to suggest alternative strategies and action programmes. Analyses of situations at regional and national levels (particularly at national) must be made and advice offered on programme planning, implementation and evaluation. Experiment and innovation are required which break away from traditional approaches to education and training and which benefit the whole farm family. FAO, therefore, has a keen interest in the improvement of extension services, in training for agrarian reform and in a wide range of specialist training from animal husbandry techniques to home management. There are few divisions in FAO which do not have an important educational input relating to rural development.

FAO's field programme includes a large number of projects in many countries of the developing world designed to promote rural development through education, mainly in the form of pre-service and in-service training of staff. Examples are the Training and Research Institute for Agrarian Reform in Chile, the Rural Youth Club Training Project in Upper Volta, the Institute of Agricultural Extension and Cooperatives in Iraq, the Farmer Training and Functional Literacy Project in India and the Regional College of Tropical Agriculture in Western Samoa.

In operating these projects over the years, a large corps of dedicated men with considerable expertise conversant with rural educational problems has been built up. There is a valuable feedback of material for FAO's Regular Programme in Headquarters and in the regions.

However, the international agencies do not claim to be able to solve all the problems of rural education. What they can do collectively is to support the tremendous efforts being made at the country level and it is basically at the country level that results must be achieved. FAO and other international agencies undoubtedly have a very important catalytic role to play in furthering the material and social welfare of the rural sectors of developing countries.

ANALYSIS OF THE WORKING OF YOUNG FARMERS' CLUBS IN WESTERN STATE, NIGERIA 1/

Very little work has been done in evaluating youth clubs in developing countries. A study was recently undertaken in Nigeria for this purpose, the specific objectives of which were:

- to analyze, using membership trends as a criterion, the operation of young farmers' clubs in parts of the Western State of Nigeria;
- to suggest methods by which the operation might be improved and new clubs introduced or strengthened.

The Young Farmers' Club of Western Nigeria, established in 1957, has the following principal aims:

1. To create interest in, and develop respect for, agriculture.
2. To teach improved agricultural methods and practices.
3. To develop competent agricultural leadership among the youths.
4. To teach the spirit of thrift.
5. To inculcate the spirit of cooperation and team work.
6. To develop character training in order to produce useful and patriotic citizens.
7. To develop pride and desire for achievements and improvements in agriculture and home economics.
8. To provide an opportunity for youths to develop social and recreational centres of their own 2/.

These aims, it will be seen, point towards the development and improvement of the farm, the home and the community. The emphasis in young farmers' clubs in Nigeria is on encouraging rural youth to appreciate, respect and, where possible, to take up farming in order to augment food production and slow down rural/urban drift.

Evaluation of Twelve Clubs

The evaluation study was conducted in selected villages in eight of the administrative divisions of the Western State. Data were collected under two headings - first, the operation of clubs and secondly, some characteristics of club members. Fourteen clubs were selected, although two were finally dropped from the analysis because they started very recently (in 1971), and lacked, therefore, the type of information required.

Although it was not intended that the study should measure the impact of young farmers' clubs in terms of their achievement of aims, it is of interest to note some of the data selected in relation to these aims:

a) Since members have had individual and group projects on agricultural topics, they have developed an interest in, and respect for, agriculture.

b) The agricultural projects are initiated and instruction supervised by local extension workers who provide up-to-date packages relating to improved practices. Thus the young farmers learn improved methods of farming.

c) Members conduct one or two general meetings led by the office bearers who are fellow members of the club. They also conduct certain group projects. These activities provide opportunities to develop firm leadership among the members, under the guidance of the extension worker.

d) Individual and group agricultural projects involve economic transactions, so that club members are able to see the relationship between economic input and output; this promotes a spirit of thrift.

e) Clubs conduct some social and community projects thereby voluntarily helping the community to solve common problems.

f) Members organize recreational and entertainment activities which result in a higher membership trend and provide opportunities to members to develop social and recreation centres of their own.

It was noted that clubs with a satisfactory membership trend achieve their aims to a much higher degree than others.

Recommendations

The work of twelve clubs was fully analyzed and it was found that six had a steadily increasing membership, and six had a decreasing membership. As a result of the analysis, the following recommendations were made to improve their working.

1. When starting a new club, membership should be restricted to twenty. Membership may be increased as the programme becomes interesting and successful.

2. More attention should be given to the older clubs, since they tend to have decreasing membership.

3. Club officials should be encouraged to conduct two or three general meetings per month, since clubs with one meeting per month have decreasing membership.

4. Club officials should keep up-to-date and systematic records which the extension workers should check during their supervisory visits.

5. Members should be encouraged to select executive committee officials by an informal procedure, rather than by a formal ballot.

6. It is advisable to enrol members from the relatively younger age groups, preferably not more than 30 years old and those who are literate or have some schooling.

7. Every member should be encouraged to have an individual agricultural project, e.g. on maize, cassava, cotton, rabbits, etc.

8. Group projects on agricultural and social or community work are very important for clubs with a steadily increasing membership. Each club should have at least one group project. The agricultural group projects of most interest to members are those dealing with rice, maize, poultry, rabbits, kenaf and pigs. Group projects on social or community activities favoured by members are roadmaking, construction of a community hall, club hall or church.

9. In addition to the individual and group agricultural projects, members value the recreation, entertainment and social or community services provided through their clubs. These activities should be made an integral part of the programme of the young farmers' clubs.

Subjects for Future Investigation

The study revealed certain aspects of young farmers' clubs which need further investigation in order to improve the effectiveness of the clubs. These are as follows:

1. The role played by the clubs in diffusing improved agricultural technology to non-members within the same village.
2. Reasons given by members who drop out of clubs and their personal and social characteristics.
3. Reasons for lack of interest by members in individual projects.

---

[1] A more detailed account of the above investigation, which was carried out by Dr. R.O. Adegboye, Dr. A.U. Patel and Mr. A. Abidogun, may be obtained from Dr. Adegboye, Senior Lecturer, University of Ibadan, Ibadan, Nigeria.

[2] Odusanya, J.A., Club Organizers Guide Book, Extension Services Division, MANR, Ibadan, Nigeria, 1961.

NEW PERSPECTIVES FOR RURAL DEVELOPMENT IN MALAYSIA

by

Abdullah bin Ujang

The new economic policy of the Government under the Second Malaysia Plan will generate dramatic changes in agricultural development in the next decade. Basic physical infrastructure will be provided in almost all major agricultural areas, with an extensive network of rural communications, while massive irrigation and drainage facilities will be provided for most of the cultivated agricultural areas. Agricultural technology will be stepped up through the efforts of MARDI (the newly-established Malaysian Agricultural Research and Development Institute), production, credit and marketing programmes greatly enhanced through the efforts of the Agricultural Bank and FADA (Federal Agricultural Development Authority) respectively, while commercialisation efforts will be increased through the introduction of new economic institutions such as Farmers' Associations. More agro-industries will be set up in rural areas under the auspices of the newly-formed Government Corporation, FIMA (the Food Industries of Malaysia Ltd.), specifically set up by the Government to promote new agro-based industries and to seek new markets for Malaysia's agricultural produce overseas.

The Government has already given high priority to the development of the agricultural sector under the Second Malaysia Plan, which is designed primarily to achieve the objectives of the new economic policy. Primarily, the policy aims at eradicating socio-economic disparity amongst the population, enhancing equitable income distribution, expansion of agro-based industries and creation of job opportunities in labour-intensive pursuits. While promoting overall economic growth of the nation, the policy is also geared to re-structuring the socio-economic foundation of the Malaysian society.

The objectives of the new economic policy, however, will not materialise unless small-holding agriculture, which supports more than 70 percent of the population, is commercialized and farmers are actively involved in the development process. Efforts in the commercialization and modernization of agriculture need to be supported by essential economic and technical services. Agricultural development has been properly planned from the grass-roots.

Any efforts aimed at commercializing the agricultural sector in the traditional Malaysian rural community may necessitate a re-structuring of the community itself and the rural economic institutions. Much of the settled agriculture will have to be transformed from its static condition to a more dynamic phase. Progress in large-scale plantation (estate) agriculture will have to be balanced with commensurate development of the small-holding sector. The monocrop system of agriculture (based on export-oriented crops such as rubber or oil-palm) must be supplemented with new and more diversified cropping patterns. New approaches to changing the traditional farming community into a modern, progressive and highly commercialized community must be adopted.

A New Strategy

Past efforts to develop agriculture with the "traditional" extension approach have not had much impact as regards the adoption of modern scientific farming.

The extension efforts were more of an advisory nature - programme-oriented rather than people-oriented. Gradually the extension service became more a servicing agency for distribution of subsidies and Government assistance, than an agency that promoted problem solving and initiated development programmes with the farming community.

A new strategy in the development effort is necessary. A more pragmatic approach to extension could create a modern progressive farming community and viable rural institutions that would harness the agricultural resources and modern technologies into a dynamic, commercialized and profitable venture.

Basically, the development strategy of the Government is focused on the following:

1) Development of basic infrastructure facilities by the Government.
2) Development of human resources to promote people's active participation and involvement.
3) Development of economic institutions supporting and servicing agriculture (credit, marketing, transportation, etc.).
4) Development of agro-industries to support excess rural labour.

Integrated Extension through the Area Development Approach

This new strategy forms the basic framework of the new economic policy and is implemented in the Second Malaysia Plan under the code name of Area Development. It is a two-pronged attack on agriculture. The first line of advance is a sustained and comprehensive programme of agricultural development activities. The aim is to concentrate development efforts on selective and high-potential agricultural areas where land and water resources are available for rapid and tangible development and where the physical infrastructure already permits rapid construction.

Such a programme will not only have visible impact upon the area in a relatively short time, it will also have a radiating influence beyond the area itself. The Area Development Locale is the scene of concentrated agricultural activity and is the growth centre for socio-economic development.

The second line of attack is in the preparation of those surrounding areas for concentrated effort and for socio-economic and technological take-off. It involves building key sectors of the transportation system, improving the land base wherever it is needed and possible, and providing other social and economic amenities not yet realized.

More integrated effort, oriented towards preparing these sectors of the rural population for accelerated development, will be required by the agencies involved in vocational education and extension.

This two-pronged attack will succeed only by a joint effort by the Government on the one hand and the farmers on the other. It means one single, effective force moving towards a more responsible and dynamic agriculture in which the farmers will be active participants in the economic life of the nation.

Human resource development is thus the key to rapid socio-economic development. The aim is development of people through extension education and training; through providing opportunities, facilities and incentives to put knowledge and skills to work for increasing agricultural production, increasing incomes and greater economic growth for the benefit of the people and the nation.

New Economic Institutions

The integrated Area Development concept can be successful only if the human resources are properly mobilized and developed, and the necessary services and economic institutions provided.

To achieve this re-structuring of the agricultural community, farmers must first be organized into dynamic groups and essential services provided by viable farmers' associations located in each Area Development Locale. Farmers' associations, therefore, form the basic institutional framework and vehicle to plan, execute and promote the concentrated agricultural development programme.

Initiated in 1967, the programme now embodies 100 farmers' associations established at local level, 9 at state level and a National Farmers' Association launched by the Hon. Prime Minister on 24 March 1972. Already there are 65,000 members and more farmers are enlisting.

Farmers' Associations

The plan for the future is to set up a net-work of about 200 area farmers' associations in each of the agricultural extension districts (area development locales) and a state farmers' association in each state or province. An area farmers' association is organized in an agricultural extension district covering 5,000 - 10,000 acres and with 1,000-2,500 farm families. Each farming district should have no fewer than 15-20 farm localities (villages) for economy in wholesaling farm inputs, marketing farm products, providing farm credit and generating agro-industries, and be viable enough for capital investment. It should be responsive to a more diversified and commercialized agriculture and introduction of economic cropping patterns.

Each of the area farmers' associations (F.As) has an elected Board of Directors, members' representative Assembly and numerous unit chiefs (at village level). Management is entrusted to selected personnel comprising a general manager and a number of management-trained extension officers. Formerly, these extension officers were assigned to work individually in a number of villages without much technical and economic support.

Under the new approach a team of extension personnel is reassigned to work with and manage the farmers' association. The chief of the district extension office is re-assigned as general manager of the F.A., while the other extension personnel are retrained to serve in other capacities. Each of them heads a division - Extension, Credit, Economic (Supply and Marketing), or Accounts and Administrative Division.

Extension and Business Activities

Under the new approach the extension service is coupled with business services, and the whole farming area is managed in an integrated manner on the basis of sound farm and business management. This is essential in order to provide the farmers not only with technology, but also to make available the required production inputs and make accessible essential services such as credit, savings, farm mechanization, storage, transportation and marketing services which were formerly not available or provided by traditional middlemen and unscrupulous village traders.

Basically, the extension and business activities of the F.As are confined to the following:

Extension

1) Conducting farm and economic surveys to assess needs and potential of farming districts.

2) Working with other agencies to conduct soil surveys and identify soil requirements.

3) Determining suitable cropping patterns.

4) Preparing integrated farm plans and budgets.

5) Organizing production, multiplication and distribution of seed supplies and other planting materials.

6) Providing farm management and technical advice on production, use of inputs, pest and disease control measures, mechanization, harvesting and marketing farm produce, etc.

7) Organizing pest control services.

8) Conducting training courses and promoting projects on farm management, home economics and rural youth activities.

9) Conducting extension services through various extension methods and techniques - demonstrations, campaigns, short courses, tours, field days, etc.

10) Providing general information and promoting group activities and community-action programmes.

Business and Related Services

1) Stocking, sale and distribution of farm supplies, including fertilizers, insecticides, farm equipment.

2) Sale and distribution of seeds and planting materials.

3) Sale of consumer supplies and daily necessities.

4) Provision of mechanization services (tractor ploughing).

5) Provision of storage facilities.

6) Arranging and organizing contract services for land improvement, drainage and irrigation works, replanting and rehabilitation programmes.

7) Organizing collection, storage and marketing of farm produce.

8) Providing transport facilities for marketing of farm produce and distribution of supplies.

9) Setting up and providing facilities for the milling and processing of farm produce, and promoting agro-based industries.

10) Seeking and organizing new markets, market promotion and conducting general business of the farmers' association.

People's Involvement

Active participation of the people is promoted through the small agricultural units and local groups of adult farmers, home-makers and farm youth organized at the village level. They are involved in problem-solving group discussions, local fairs and competitions, field days and agricultural shows.

The farmers' groups meet regularly to plan activities and promote special agricultural programmes such as large-scale planting of maize, introduction of new cropping patterns such as inter-cropping or promotion of livestock projects. Small agricultural units receive technical support and economic services from the F.A., whose Board of Directors meet monthly to plan new programmes, assess and evaluate existing plans and make new proposals for expanding the production and business programmes of the F.A.

Development of local leadership is greatly enhanced by decision-making processes at various levels and by practical experience in problem-solving, planning, organization, execution and assessment of the F.As' extension and business activities. Full support and complete guidance is provided by the Department of Agriculture, the sponsoring agency, and other supporting agencies of the Government.

Success

The response of the farming community has been overwhelming. The results are most encouraging and are indicative of the social acceptability, economic viability and technical feasibility of the farmers' associations and of the Area Development Programme as a whole.

Farm output has increased; padi double-cropping has greatly expanded, ensuring self-sufficiency in rice by 1973. Crop diversification is being actively pursued, with extensive cocoa inter-planting on coconut smallholdings; pineapple, coconut and fruit replanting and rehabilitation programmes are in operation and new agro-industries are being established for agricultural and livestock products.

The capital assets of the F.As expanded from M$ 1.3 million in 1969 (for 23 F.As) to $5.4 million in 1971 (88 F.As). Business volume increased from $975,000 in 1969 to over $4.0 million in 1971, while total profits almost doubled to $800,000. The results are small by comparison with other business firms but they are growing, and this growth is vitally important to a fast changing rural society.

New Development Role

The farmers' association is an innovation in a new dynamic rural society and is pertinent to the development efforts of the Government and the people. It is a valuable socio-economic mechanism to service agricultural development in the smallholding sector and an important institution for promotion of integrated rural development.

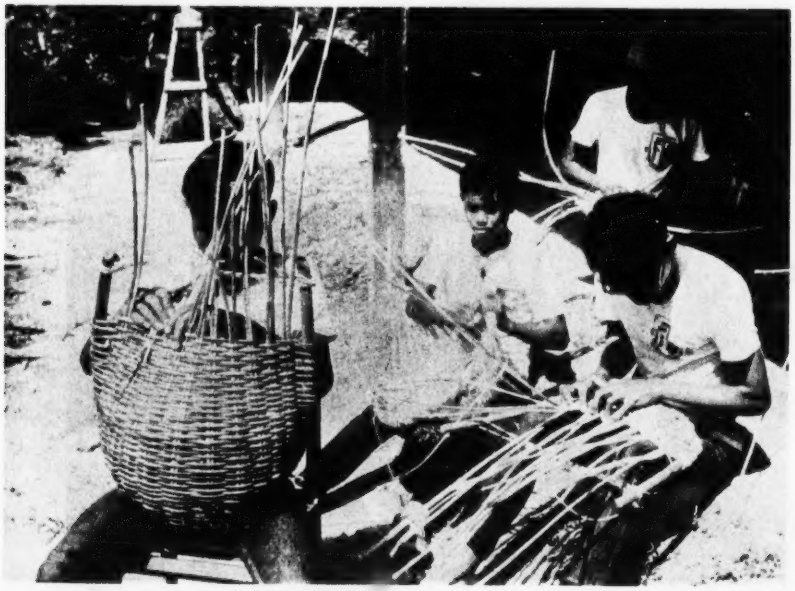
Farmers' associations have made it possible for the planning and execution of a new brand of extension programme designed to promote the economic and social advancement of small farmers. It has been possible through farmers' associations to organize and implement "Area Development" programmes aimed at concentrated development of selective agricultural areas on the basis of a package deal, providing essential services to farmers. Farmers' associations form links in the chain to bring much needed farm supplies to farmers, provide credit for commercialized farm production, organize markets for farm produce, and provide numerous other essential services.

The new role and pragmatic approach to rural extension in Malaysia has begun the process of progressive change towards the commercialization of the country's small-scale farming and the modernization of rural society.

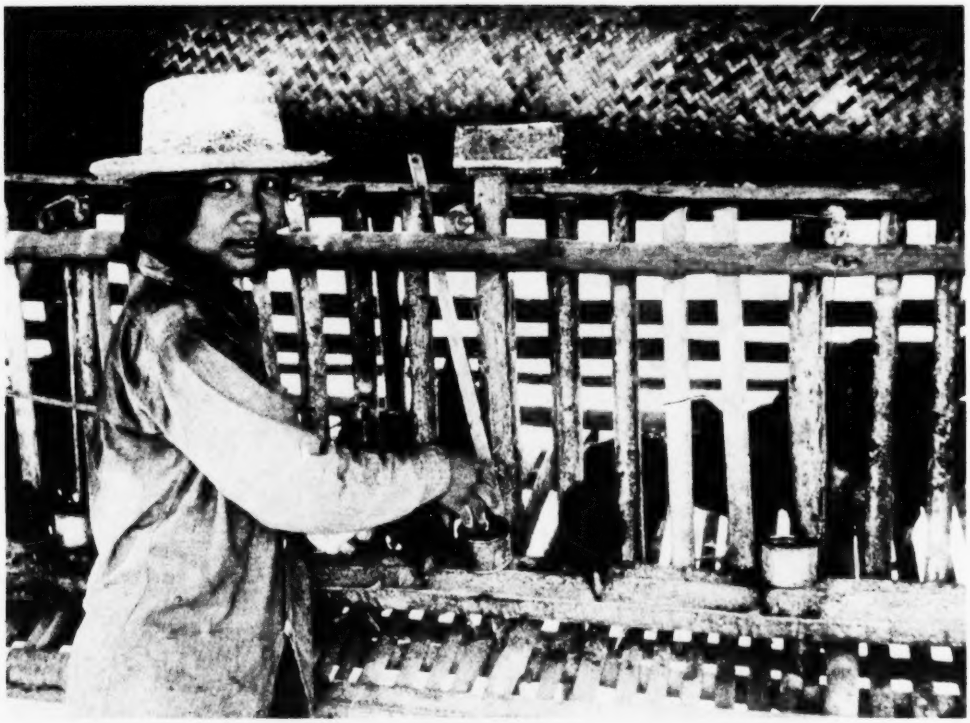
Zambia: Mothers are taught good nutrition with posters and a flannelgraph. A broader system is required which "must be life-long....capable of serving rural people of all ages". (page 1).

An extension worker of the Thai Ministry of Agriculture using a poster to teach fertilizer application. (page 1).

Members of the Taruna Bumi (Sons of the Land) section of the Gerekan Pramuka Movement work on a village development project near Klaten, Central Java (Page 7).



Young trainees undertaking a three-month course at a farmer training centre, Sarawak (Page 7).



Lessia Lindang has developed her own poultry enterprise after attending a three-month course at the Temudok Farmer Training Centre, Sarawak. (Page 7)

A young farmers' club vegetable project in a village near Agra, India (Page 7)

One of five wells with a total capacity of 15,000 gallons of water per minute to irrigate a plantation in Nicaragua
(Page 12)

Row irrigation of cotton using pumped underground water in Syria
(Page 12)

Small group discussion is the most effective method for achieving active and responsible involvement of rural families. (page 49)

Cooperative training is based on work with groups. A democratic family environment helps communication. (page 49)

VECINOS
PARTICIPANTES 35
COSTE CAMINO CRUZ DO CARBALLO
JORNALES PEONAJE
JORNALES

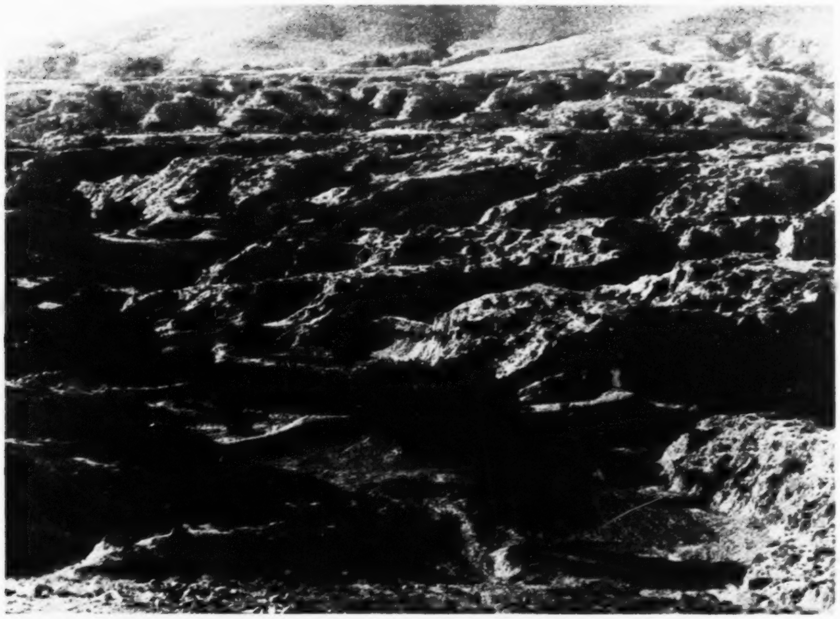
Members of cooperatives must be capable of studying their own problems, devising solutions, and founding and continuing the organization that will enable them to solve these. (page 49)

The labour of students (and teacher) in brigades offsets recurrent costs at the First Education Congress School in the Countryside, Jagüey Grande, Cuba. (Page 52).

ENVIRONMENT (page 56)

Simple methods of preventing soil erosion -
'beaver' dams for trapping silt

The bank of a European river



Erosion in North Africa. There is need for creating a planetary consciousness about environmental problems.

Terraced Paddy Fields in Burma

EXTENSION WORK IN PROMOTING AGRICULTURAL COOPERATIVES - EXPERIENCE IN SPAIN

by

Antonio Salvador Chico

Extension work is a continuous process of active education geared to problems and needs which influence the standard of living of rural families and aim to improve the ability of the farming population to recognize and solve their problems. Obviously, in both subsistence and commercial agriculture there are always situations requiring a voluntary pooling of resources and efforts for common action. Farmers, like others faced with common problems, have sought security in the social group and have developed institutions and types of social organization that promote the common welfare.

Primitive people first came together for hunting, for the herding of livestock, for the joint use of pastures and the control of land use. From there, they proceeded to help one another with crop harvesting, setting up mutual insurance societies and founding, for example, irrigation communities. Nowadays, they have to join together to produce more, to buy, to sell and to improve their social status. This is what makes these groups of special interest to extension workers who are more and more coming to understand their tasks as educators and the contribution they can make to rural development by helping to make technology available to agricultural communities.

No extension agent today can consider his task fully accomplished if he confines himself to merely continuing to urge adoption of new practices, unless the farmers themselves, out of their own good judgement and after mutual collaboration in concrete situations, can be brought round to the same way of thinking. Since people "learn by doing", extension agents have found that the best procedure for learning how to solve community and cooperative problems is by taking positive action.

The difficulties encountered in promotional work are those found in all types of extension. For instance, groups and communities often fail to set themselves valid goals; and even the rural population may have succumbed to apathy and resigned themselves to doing nothing so that it is difficult for them to accept responsibility for "self help". They feel that their problems should be taken care of by "the authorities" or the "institutions". At other times, farmers clearly perceive the problems and are aware of the advantages that they could gain by united action, but lack self-confidence and faith in their own abilities. Initially, those communities that can achieve more through their own action should be accorded help.

Three constituents of any group can be distinguished: a common goal, a structure and an organization.

The common goal is the objective that members set for themselves. Consequently, it is necessary to determine in what ways the people are ready to make the necessary efforts, giving them precedence over their private interests through the organizational set-up that they themselves establish. For a group to be viable, its members must have an opportunity to express their desires and feel that they have taken the initiative.

It should always be remembered that the educational process should eventually lead to satisfaction of needs. This will not happen unless the goal is compatible with the abilities and means of the group which must have achieved positive results if it is to have confidence in its abilities.

The type of organizational structure depends on the statutes, rules or regulations that the members themselves lay down. It is not sufficient that members of the group determine the goals; it is also necessary that they work out ways and means of attaining them. The members will then feel themselves more closely identified with the group. The greater the extent members feel that they have contributed to formulating these rules and regulations, the more they will feel identified with the group.

In the final analysis, the ways and means consist simply of agreement on practical ways for pooling resources and efforts, organization for joint work, and execution of the plans drawn up. When the group decides on ways and means, these are in accordance with their customs and traditions - an extremely important point, because these are sanctioned by custom, they satisfy the people and are considered appropriate to the situation.

Organization implies that some persons assume greater responsibilities and take over representation for the group. There are several good reasons for holding democratic elections for such responsible persons. Primarily, farmers' participation is voluntary; therefore, unless members of the group elect their own leaders, development of the association will be hampered. Moreover, such action is the best means of discovering who are the best community leaders through whom the extension process can be promoted and intensified.

It is a fundamental precept that members of cooperatives, through training, must be capable of investigating their own problems, finding solutions and invigorating and giving continuity to the organization through which they will be solved.

In the process of training, several phases are identifiable. The initial stage consists in finding out the real problems through authentic "communication" with farmers, using group techniques. Agricultural extension is a combined process of education and promotion, clearly distinguished from traditional-type education because, in the latter, the students are obliged to adjust themselves to curricula set by teachers. Agricultural extension programmes are not laid down but work is concentrated on problems. The first step is to encourage farmers to identify the problems for themselves and analyze them clearly. By means of a dialogue between the extension agent and the farmer on an equal footing, it is possible to bring the group to reflect on a problem and diagnose its causes. Through such a dialogue, groups have been able to discover that cooperatives can be the answer to specific needs and to many of the current problems of farmers, rural housewives and rural youth. For instance, a youth group studying with a home economics extension worker who uses group education techniques relating to child care, nutrition, clothing, etc. may raise the need to start some economic enterprise that will provide paid work to fulfil the desire for financial independence. And although it is not known whether the answer may be an industrial manufacturing cooperative, a greenhouse for growing flowers, or setting up a workshop, the motivation is sufficiently great for them to seek guidance on starting a common commercial enterprise.

Another important contribution extension services can make is to assist in achieving the best technical and economic orientation for cooperative action. Cooperatives can be an excellent instrument for social progress and the first requirement, therefore, is knowing whether a prospective group can bring real technical and economic benefits to the farmers. That is why extension workers (possibly with the aid of specialists and management centres) should help those interested to make a serious technical and economic study, on their own behalf, before proceeding to organize groups. On the basis of such a survey, it should be possible to decide whether it is worthwhile forming a group and with what objectives. It should be made quite clear to the farmers the benefits they will gain by uniting, as well as stressing the efforts members must make for these benefits to be realized.

Once a group of people has been effectively helped to realize what - at least theoretically - they can achieve by unity, the problem shifts to the question of organization. With already trained groups it suffices, at a general meeting or, better still, in committees, to list all the difficulties that will be encountered in organizing the cooperative group and discuss each point thoroughly. In practice, it is found that farmers have been able to draft the most complex regulations on such subjects as land use, shares, distribution of earnings and profits, work organization, and so on.

The extension agent, without interfering in the deliberations of the farmers, should provide useful information on request and help them to consider many situations of which they would normally have little knowledge. Above all, he should ensure that maximum individual benefits are related to group benefits. In this way, each and every person will feel himself motivated to work for the common good.

The failure of most cooperatives for pooling of machinery is due precisely to overlooking this point. The cooperative harvesting machine, for example, ends by working only at optimum harvesting time so that its output is less than hoped for. The same thing happens with tractors or other farm machinery. Farmers must devise arrangements for working as associates, avoiding tension and conflicts of interest, and must be convinced of the need to pool all means of production or inputs.

Whenever farmers, with intelligent assistance from an extension agent, have laid the bases for forming an association and have reached agreement as to what they wish to achieve and how to proceed, the next step is the setting up of the cooperative itself. For this they need assistance in legal and administrative matters. Later on, the extension services should furnish the cooperative technical assistance on a permanent basis, always with the intention of improving the ability of members to accomplish what they can by themselves. Obviously, to bring the farmers along that far requires the solution of many problems - but they will feel that they are responsible for their own development and will be filled with enthusiasm and confidence to continue further. The extension agent will derive considerable satisfaction from having contributed to the success of the cooperative.

CUBA'S SCHOOL IN THE COUNTRYSIDE: AN INNOVATIVE HYBRID

by
Arthur Gillette*

At first, you wonder if there hasn't been some mistake. You ask yourself if your guide hasn't misunderstood your request to see a rural school, and taken you instead to a youth centre or youth brigade camp of some kind.

Approaching the central buildings, you see several groups of a dozen youngsters each, working in the surrounding fields around coffee bushes and lemon trees. Some are pruning, weeding, fertilising and doing similar tasks in tending the coming crops. Other groups are using simple scientific equipment to study parasites, test for plant illnesses of various kinds and compare the effects of various treatments.

Inside the buildings, you find another group deep in discussion. Subjects range from production targets to dormitory life, without forgetting the sports programme and the internal radio network (which broadcasts through a public address system). Still another group is rehearsing a play for presentation in surrounding villages.

To be sure, there is at least one adult in each of the groups. But he or she is dressed in a simple grey uniform identical to those of the young people. In the field teams, adults are working alongside the younger members. In general, relations between the generations seem more relaxed and amicable than in most of the world's classrooms.

Despite appearances, there has been no mistake. This _is_ a school (at least it is called a school). There are classrooms, laboratories and other elements traditionally linked with institutions of formal education, and the people you see are teachers and pupils. You have been visiting the 8th of October School in the Countryside, near Havana. This is one of a dozen prototype lower-secondary _escuelas en el campo_ (schools in the countryside) located throughout Cuba. They are the crest of that country's educational wave of the future.

The school in question is much more than an institution of formal instruction. As the visitor's first impression of the 8th of October School suggested, the _escuela en el campo_ boasts a number of features usually found only outside the classroom, in varying mixes, in youth movements, youth centres, civic service schemes and other non-formal programmes designed for rural youth in developing countries.

For one thing, the education that takes place there is relevant; it is directly related to the rural world. The young people learn the entomology of parasites rather than the etymology of Latin. Secondly, instead of treating the learner as a passive being who should sit still while being crammed with knowledge derived from abstract principles, the pedagogy seeks to make him or her an active agent, whose education is largely inductive, starting from experience. Thirdly, activities inside and outside the classroom are, to some degree, self-programming: the students have a say in fixing production targets, sports activities and similar topics.

---

* This article is written in a personal capacity and does not necessarily reflect the opinions of the institution to which the author is attached.

Finally, instead of cutting students off from rural life, the school in the countryside plunges them into it. This happens in a variety of ways. The school itself has the air of a pioneer community, for instance, thence the egalitarian adult-youth relationships. Then, too, the school is not merely a consumer of national funds, at best an investment, the returns from which will only be felt years hence through increased lifetime productivity of graduates attributable to education. Rather, it is a unit of production as well as of education, making an immediate contribution at the next harvest.

In sum, the Cuban school in the countryside is something of a hybrid of formal and non-formal education. This hybridisation came about in conditions similar in kind (if not in degree) to those in many less developed countries. How and why did it take place? An answer would be of interest to other countries. But to answer we must view Cuba's efforts within a panorama of the development of relations between formal and non-formal education.

Generalising from a number of cases, I suggest a pendulum theory for explaining educational evolution. Very briefly, it goes like this:

1. In pre-industrial societies, there are seldom specific and separate institutions whose chief assigned function is the long-term education of youth. Rather, the child learns naturally, almost incidentally, as an integral part of his or her everyday life. The sources of learning are the family, the village, the tribe, the nation 1/. One might say, then, that pre-industrial education tends to be non-formal (which doesn't prevent it from being ritually sanctioned).

2. As the pace of technological development quickens, such integral, non-formal education becomes inadequate. The teaching of a father or mother can no longer prepare a son or daughter for a world with an increasing rate of innovation, discovery and change. Thus, separate formalised institutions with specialised personnel appear and proliferate in step with industrialisation: the schools.

3. Before long, however, the school also becomes inadequate to the situation. Generally designed by and for the urban-centred economies of the world's metropolitan powers, formal education is particularly ill-suited to the needs of rural youth of less-developed countries. Thus, the pendulum swings again, and a movement of non-formal education appears. With their rural youth clubs, literacy classes, national youth services, extension and animation schemes, and other non-formal programmes, many less-developed countries seem to be at this stage of educational evolution.

Put simply, the situation appears to be that while schools offer (at least the potential of) quantitative education, capable of reaching a wide audience, out-of-school schemes are better adapted especially in qualitative terms. Competition may be healthy in some cases, but I believe that opposition between formal and non-formal education is irrational and inadvisable as a long-range proposition.

4. Perhaps, then, the next logical swing of the pendulum would be toward dead centre, i.e. toward what has been termed "a totally new educational process, where the distinction between formal and non-formal education disappears." 2/

Cuba's schools in the countryside bring the previous paragraphs of theory down to earth. As often happens with innovations, the escuela en el campo originated as a single answer to a number of concrete and pressing problems. It is, so to speak, a single stone that is thought to be capable of killing several birds.

Problem number one was a continuing drastic shortage of manpower. Unlike most less-developed countries, Cuba has high job security and virtually no unemployment. Add to this widespread retirement benefits and increasing numbers of young people who are able to go to school instead of working, and one understands why only 32% of Cubans are considered economically active (compared with over 40% of the population of most industrialized countries), and why there simply are not enough hands to do all the jobs that need doing, particularly seasonal farm jobs.

Problem number two: the need for more practical education. Cuban agriculture urgently requires farmers and technicians who are capable both of carrying out specific jobs and of using judgment to know when which jobs need carrying out, where and why. There is no substitute for out-of-school experience, taken in large doses and under professional guidance.

Thirdly, while well over half of Cuba's population are now city dwellers, its economic future resides in the countryside. If they are not to be alienated from the country's major source of production, the city dwellers require substantial personal experience of rural life.

Finally, after its gigantic efforts to extend and improve educational opportunity, Cuba arrived, toward the end of the 1960s, at an agonising realisation: it simply could not spend a higher percentage of GNP for education that was economically unproductive in the short run.

Increasingly through the 1960s, some of these problems began to find partial and temporary solutions through limited introduction of non-formal elements into the formal school system. Manpower shortages were periodically solved by short-term mobilisation of student volunteers. To render education more practical, agricultural students at the secondary and university levels began spending periods in actual work settings - farms, artificial insemination stations, sugar mills, etc. - as part of their course of study.

To systematise some of these non-formal features and above all to make them much more widely available, an experiment called "school to the countryside" (esculea al campo) was carried out in 1966. Under it, 17,000 secondary school students volunteered to spend 35 days in addition to the regular school year working and studying in Camagüey Province. In general, the experiment was judged promising and spread to almost all secondary schools. Today, such schools pull up stakes for from six to ten weeks a year and move to countryside camps. There, pupils study half-days, do farm work half-days and spend evenings and other free time learning about the region, and in various sports and cultural activities.

The "school to the countryside" was seen as a successful, if limited, solution to the first three problems mentioned above. It supplied additional manpower at times of peak demand; it offered practical education; and it was a means of increasing contact and understanding between city and country. In view of its success, the national leadership asked why this should not be a permanent educational arrangement. Only by making it permanent, apparently, would it be possible to convert the experience into a viable solution to the fourth problem, i.e. to meet the need for more funds for education by creating a self-financing school. This questioning and thinking led to the transition from "school to the countryside" to "school in the countryside".

The idea was to ensure that, ultimately, all lower secondary pupils (grades seven through ten) would attend hybrid formal/non-formal instructions that were, simultaneously, learning centres and production units. Such a radical shift could not be carried out without careful study. The 8th of October School (described at the beginning of this article) was set up as an experimental first school in the countryside in November 1969.

Gradually, the experiment was expanded. Today (April 1972) there are about a dozen "schools in the countryside" in operation, and more are being built. Typical of those now existing is the 1st Education Congress School, opened a year ago at Jagüey Grande, in south-central Cuba. It is housed in four airy three-storey pre-fabricated blocks. These include classrooms, laboratories, a kitchen-dining unit, a library, offices, dormitories and teachers' quarters. The school is surrounded with citrus groves, and counts 446 pupils, half boys and half girls.

Five mornings a week, grades 7 and 9 go to class while grades 8 and 10 work in field brigades. Each brigade has about 20 members, plus a teacher-leader, and tends its "own" plot of fruit trees. Afternoons, grades 8 and 10 work while grades 7 and 9 attend classes.

Evening activities consist of individual study sessions and extra-curricular Interest Groups. These range in content from technical subjects like parisitology and agricultural mechanisation to cultural activities like theatre, cinema appreciation and painting. Alternate weekends are devoted to special activities and home visits.

Students work in the kitchen, wait at table and take part in group emulations for the cleanest dormitory. (There are also emulations among work brigades). In addition, students have a voice in discipline and many other decisions through elected Classroom Councils and representation on the School Council (with vote as well as voice).

How does the School fare academically? And in terms of production? Although its students are a representative sample, compared with pupils at regular lower secondary schools, the percentage of passes among them is well over the national average. Similarly, their productivity per man-hour of field work usually equals (and is often above) the adult norm for unskilled agricultural labour.

An admittedly crude cost-benefit analysis leads me to conclude that the work is not likely to offset capital investment in the School within a reasonable length of time (e.g. less than ten years). But there seems to be a very high probability that all recurrent costs can be covered [3]. If this is so, then the "school in the countryside" will prove to be a remarkable breakthrough: a self-supporting rural mass educational institution.

The Cuban Government is sufficiently impressed with the results to have announced a target of 1,000"schools in the countryside" by 1980. That would be enough to accommodate all lower-secondary age youngsters eight years from now. Long before then, it is planned that the "schools in the countryside" will have major economic responsibilities, including one-third of an ambitious national citrus fruit programme. Experimentation with a similar hybrid approach recently began at the primary level.

To be sure, the "school in the countryside" is not problem-free. For one thing, although I call it a hybrid, the two original strains are still clearly visible. The classroom work still looks very much like that in traditional formal schools (although more use of audio-visual aids is made than in other Latin American countries). Meanwhile, the atmosphere and activities outside the classroom resemble those of non-formal education. This is a situation more of co-existence than of organic integration.

If, however, this and other problems can be solved, the combination of formal and non-formal education in the "school in the countryside" may well be judged to have the chief virtues of many hybrids: it will be hardier, more productive, and better suited to ambient conditions than either of the original strains.

1/ The chapter on "System of Education" in President Jomo Kenyatta's Facing Mt. Kenya offers fascinating insights on how this was accomplished among the Gikuyu prior to the advent of Europeans in Kenya.

2/ W. Schmidt and A. Gillette, Considerations for the Formulation of National and Interagency Strategies vis-à-vis Rural Youth in the Less Developed Countries, Rome, FAO, ESR/MISC./71/20 September, 1971.

3/ Readers will find more details on this point, as well as an overview of and bibliography on Cuban education, in the author's short monograph The Cuban Educational Revolution, scheduled for publication by the Fabian Society (London, U.K.) in late 1972.

Note: To readers interested in various non-formal institutions with a rural bias, The Centre for International Education at the University of Massachusetts, Amherst, Mass. 01002, U.S.A. has published a comprehensive document on the subject entitled: Non-Formal Alternatives to Schooling: A Glossary of Educational Methods, price $2.50 (available in English only).

ENVIRONMENT AND EDUCATION

The United Nations Conference on the Human Environment, which took place from 5 to 17 June 1972 in Stockholm, focused attention on this immensely important problem of our time.

Among the many tasks entrusted to FAO under its Constitution is the conservation of natural resources and far more attention will have to be paid to this aspect of its work in the future.

Dynamic Change

With the tremendous increase in world population and with the growing intensity of exploitation of soil, forest and water, the question of how to conserve these natural resources and maintain an acceptable environment is becoming urgently pressing. The problem of environmental conservation, as envisaged by FAO, is not, however, that of maintaining a *status quo*, but rather one arising from dynamic change, where environmental conservation is achieved during, and as part of, development and technological progress.

Pre-requisites for Long-Term Production

In the main areas of activity of FAO (agriculture, forestry and fisheries), there is no conflict of principle between the objectives of development and those of protection of the environment, since the maintenance of the productive capacity of natural resources and of acceptable environmental standards are both pre-requisites for long-term sustained production. In the formulation of development plans and programmes and in their implementation there are, however, practical difficulties in ensuring that environmental principles and criteria are taken into account in the socio-economic contexts prevailing, particularly in some developing countries. As the scale and pace of development activities increase, so do the quantities of resources and inputs used for food production; and this, in turn, increases the need to compensate for certain side effects (such as resource deterioration, biological pollution, chemical pollution, physical disruption and social disruption) which might otherwise nullify the benefits from larger outputs of food and other agricultural products. This situation will not improve unless greater national cooperative efforts and increased international aid can be achieved as part of a common responsibility of the world community to ensure the welfare of mankind both through economic growth and improvement of the quality of the environment.

Planetary Consciousness

Protection of the human environment and rational management of natural resources cannot be only a matter of administrative regulations and top-level planning. Since practically every human being can contribute to the improvement of the human environment or speed up the process of its destruction, there is clearly a need for creating a "planetary consciousness" about environmental problems. It is necessary to create awareness and develop positive attitudes to these problems and this has to be done at every level of education, both general and technical. This is particularly important in the fields of agriculture, forestry and fisheries because these are vital activities of man's welfare and because a very large number of people and production units are involved in these activities.

Extension and other advisory services carry a great responsibility for assisting the farmer in understanding these problems. Because of their prime role in promoting production, insufficient attention is often paid to these aspects. In this connection, the legislative framework is of importance but legislation alone (viz. prohibition of permitting effluent to enter rivers) can never be successful without effective extension work.

Educating the Consumer

Consumers, particularly the housewives, must be taught about environmental aspects of particular concern to them. These include problems relating to nutrition, diet and health and the dangers of polluted, infected or chemically impure food. The extension services - especially those concerned with home economics - backed by sound legislation, have a big job to do. The problem is almost more acute in the developed countries but, on the other hand, the housewife can be reached by radio and television and other mass media.

Educating the Manufacturer

The manufacturer will tend to do what is profitable rather than what is prudent. In this context, therefore, legislation plays a very important role but cannot be adequate if not related to constant attempts to inform and educate. The residues of industry must also be watched, such as the non-decaying plastic bag and the almost indestructable tin can.

Educating People

By far the most important aspect of environmental education is the constant need to fight a battle to inform all ages and types of people, rural and urban, about the problem and the ways of combating it. It is a particular problem in those countries in which a large proportion of the population are never touched by the educational system, by training or by extension. But it must remain in all countries - developing or developed - a major endeavour.

Adequate legislation is required to support any drive to persuade people to care for the environment in which they live, but a law to fine people for dropping litter has no real value unless it is backed by the public and private conscience. People must be made to feel that they are doing wrong if they damage the environment by felling trees or polluting rivers, just as governments must be made to feel they are doing wrong if, by faulty planning, they damage the environment.

Nevertheless, environmental education begins with the family, with the understanding of what is right and what is wrong for the immediate environment in which it lives. A fostering of this understanding will lead in the long run to the development of conscience.

A very big endeavour must be made in all countries through the various mass communications media and all other means to help people to understand the problems and indeed to adjust themselves to living in a more crowded world.

FAO's Role

FAO has a responsibility for many projects in a wide range of subjects in which environment consciousness can be instilled. Through educational projects, extension projects, integrated rural development projects and similar activities, the means are being sought to instil environmental knowledge. We cannot be satisfied with teaching a man to plough if we do not teach him that he holds in his hands a powerful weapon in relation to soil erosion. We cannot train extension workers properly without showing them how to communicate ways of preserving the environment. Likewise, the teaching of home economics and training of youth groups and others, must all carry the environmental message. Concern for the environment (and the impossibility of an adequate life for human beings without it) will increasingly be stressed in education and training programmes of all kinds.

Not a Discipline

The approach followed by FAO in this respect is not aiming at the training of "specialists of the environment" since environment can hardly be considered as a discipline or a field of activity. Knowledge of environmental problems and of the conservation of natural resources has long been an integral part of education and training curricula in the field of agriculture, forestry and fisheries, because these aspects are essential for the maintenance of long-term sustained production. As the environmental problems related to those activities are reaching a new dimension there will be need to increase the importance of these aspects in education and training programmes. FAO has an important role to play in this respect, since protection and improvement of the environment must be achieved in the context of socio-economic development, particularly in the developing countries.

Here are some headings under which the environment question may conveniently be classified:

Concept of Education

Discussions should not be limited to the institutional educational system but look more broadly at educating people towards environmental concepts. In developing countries, about half of the people may never be in touch with the formal educational system during their youth and there is the important problem of instilling environmental concepts into adult groups.

School Education

The sciences - particularly the biological sciences - tend to be the carriers of environmental education. Environment, *per se*, should not be considered as a subject in its own right - indeed to do so could alienate interest. Many subjects should, however, be slanted in such a way that aspects of the environment are adequately covered. Encouragement should be given, in primary schooling particularly, to "learning by doing" as a means of creating understanding of the environment and its conservation. The rural child has a better opportunity for this than the urban child or those schooled in urban areas.

Agricultural Education

Nearly all agricultural education carries built-in environmental aspects. To learn about ecology, soil structure, animal health or forest management, implies learning about environmental problems. There is need to focus more direct attention on specific environmental aspects as exemplified by increasing use of weedicides, herbicides, etc., and teacher training courses should emphasize this. Specialized environmental training should be restricted to courses for those with direct responsibility, such as extension officers, conservation officers, forest rangers or game wardens.

Extension Services and the Farmers

Ultimate protection of the environment rests in the hands of the farmer, the fisherman, the forester and the housewife. Improving technology implies a constant need to relate the effects to reality. There is a short and a long-term problem. The immediate effect of ploughing up soil protection bunds to increase the ground under crop can be seen and often understood. But the farmer will use antibiotics to cure mastitis without realising the potential danger to human health; he will use DDT as an insect control regardless of the fact that he is contributing to the pollution of the seas. Unfortunately, on the long-term aspects, research is often way behind practice and there is a great need to promote more research in this field.

A COMMENT ON "THE ROLE AND TRAINING OF THE EXTENSION WORKER"

May I offer some comments on Mr. John Higgs' article "The Role and Training of the Extension Worker" in the FAO review "Extension" (1971).

I agree very much with his theme that in extension staff training curricula in many developing countries, especially at the technician level, agricultural know-how should take second place to extension education.

In countries in which most small farmers have not moved from subsistence to cash economy farming, the prime need is for extension workers to motivate them to adopt a few relatively simple improvements in agricultural techniques. In these circumstances, a highly-trained agricultural technician working at the farmer level, who is not fully aware of the deep-rooted social and infrastructural constraints, may do more harm than good. He will in any case suffer disappointment and disillusion at the apparent failure of his well-intentioned efforts to introduce improved technology.

An extension worker who, in his training, has been involved in case studies of rural development, will be able to understand the problems of the farmer and help him to marshal the supplies, agricultural services, credit, markets, consumer goods, social services and so on which are necessary to the continuing success of an area campaign for improved farming. If this necessary infrastructure does not exist, the properly trained worker will at least recognise the deficiencies and exert pressure towards their alleviation.

(For similar reasons, it is also necessary that the university-trained decision makers, who should ideally have worked at the grass roots level but who in fact are unlikely to have done so, should have a deep understanding of the socio-economic context of agriculture).

In the early stages of rural development, therefore, the agricultural extension agent needs to be as much a community development worker as an agricultural technician. The community has to be awakened to a self-realization of its own opportunities if it is to have an incentive for improving agriculture. Programmes of community development, agricultural extension, adult literacy, health and home economics education will, at this stage, have many common goals.

However, as Mr. Higgs' article indicated, it is also important to recognise the extension worker/farmer relationship as a dynamic or rolling system. The more effective the extension effort is, the more quickly will a changed extension approach be necessary. Therefore, to be relevant, training curricula must also change progressively to meet new situations. The technical content of curricula should cover in depth agricultural problems which are of current significance and those anticipated to be so within, say, five years. There should be some exposure to problems which may arise during the following five years and virtual exclusion, other than as background information, of more advanced technologies. In-service training is a better vehicle for new technologies, as the need arises.

To reduce the technical agricultural content to a really appropriate level in most existing institutes would require major surgery. Strong opposition might be expected from both staff and students and, moreover, from officials and politicians who tend to think, mistakenly, that a change away from developed country concepts towards local relevance is somehow a "lowering of standards". Therefore, even where there is an awareness of the need to make changes, full implementation may be difficult.

It is particularly difficult to exclude extraneous subject matter in the "synthetic" approach of most curricula, in which science and other basic instruction is given first, as the material from which to build up the technical know-how. The depth and breadth required in the basic courses is difficult to define. A different approach, which I am convinced would lead to improved technician training, would be to invert the whole teaching process to an "analytical" or problem-solving method. This would take the current agricultural extension problems of the country's field programme as the starting point of the instruction. In the early weeks of the course, the main technical problems and the pragmatic solutions already being applied in the field would be dealt with (if, as ideally they should, students have received pre-training field experience, an immediate student response and participation will result).

This introductory descriptive phase of the curriculum would be followed by a study of the same problems in increasing depth, branching into the specialised aspects of crop and animal husbandry and, through them, consideration of the scientific principles involved. By this approach the husbandry and science would automatically be related to the technical points of greatest relevance to field work. Students would realise the purpose of their course and understand the relevance of the science and mathematics, instead of tending to think of them as subjects included in the curriculum for reasons best known to the staff.

From the same field-oriented starting point, the curriculum would develop naturally into social studies and extension. A study of ways of approaching adults with technical solutions to problems and the demonstrated difficulties of the process should motivate students to wish to become more aware of why difficulties in communication occur. This, in turn, would lead to a realisation that the extension worker also, not only the farmer, has to adjust socially in order to communicate and that this is just as important in extension as communication methodology. In an extension syllabus which starts with basic sociology and behavioural science, these subjects tend merely to be memorized; they are not regarded by students as useful tools because they cannot be directly related to their experience. Abstract concepts mean little to the average technical trainee, so that social studies have to be just as practically oriented as the technical subjects. However, if an abstract concept can be directly linked to a practical experience, the result can be a transformation of the abstract into an element of understanding. As suggested above, this link is provided by a study of the practical situation as a basis for the social science of extension.

Also in the extension syllabus, the teaching of communications needs deeper treatment than is usually given. Communication is more than just methodology. A major constraint to communication may be the inability to observe and describe correctly, an inability not infrequently found in students recruited for agricultural technician training. Observation is, of course, an essential starting point to appreciating what is to be communicated. Time spent on developing this and other basic codes of communication can be amply rewarded, not only in the improvement of communication in the extension sense, but also in the comprehension of other subjects within the curriculum. (This was proved in Botswana where we were fortunate to recruit a teacher of English who convinced us of the need to broaden the course into basic communication and proceeded to demonstrate the benefits). A consequence of using a more basic approach to communication is that it will become a starting subject in the curriculum and not a so-called "applied subject" in the later stages.

Apart from resulting in a streamlined teaching programme with more closely definable objectives and more efficient use of time, the problem-oriented curriculum would have other important advantages. Drop-outs at any stage would have gained, before leaving, some understanding of practical issues of immediate relevance. Vacation employment exercises would have more impact and be more rewarding because the student would be aware of some of the field problems. A "sandwich course" could be adopted without the common deterrent that the student cannot cover the practical applications of his studies in advance of field-work part of the "sandwich".

A development of the sandwich course concept which I think we shall see more of in future is the "ladder", or progressive sandwich. In this, residential training courses may be spread over some years of field work, thereby introducing several advantages over consolidated pre-service training (although very close integration would be required between the educational and field services). In such a scheme, there would be little point in a trainee taking basic science courses as a prelude to his first period of field service. He would need immediate orientation to field problems; and this would be followed at a late stage in the "ladder" by a study of the science and principles. A training scheme as described would allow progressive selection of the best trainees, and, given a coordinated scheme of service, logical promotion of the most able staff into supervisory posts.

P.G. Bagshaw

DEVELOPMENT OF INTERMEDIARY TECHNOLOGIES AND THE AFRICAN CONCEPT OF PARTICIPATION

by

Roland Colin

Newly independent African countries fall to some extent under the "common law" of the world market, influenced by networks of relationships with the former mother country. Hence, any technological innovation which might affect established market trends can be controlled or even blocked by the machinery of the market economy. Certainly, protectionist trade barriers are established from time to time, but one cannot help noticing that the economic power structure imposes restrictions on the room for manoeuvre, particularly where big financial interests are involved.

Most education and training policies - essential complements of technological innovation - are still largely determined by the old logic of the colonial system in Africa. There is a more open attitude towards technological development in the English-speaking countries. This is a result of the solid tradition of empiricism which results in English being used first of all as the language of business and action, and explains to a large extent the emergence of intermediary technologies in the anglophone areas.

It is reasonable to consider, therefore, that an appropriate effort elsewhere than in English-speaking Africa would make it possible to attain a dynamic technological expansion which, while not challenging the world market, could make the requisite accommodation with,it resulting in quite substantial and immediate benefits for French-speaking countries of Africa.

What are the necessary conditions for launching a movement of this sort? The analysis of anglophone countries' practices is clearly indicative in this regard. Applied research centres must be set up where specialized teams can gather relevant technological data derived from permanent and open-ended research. Further, studies should be made in each country and for each development project of the existing or potential structures and of the economic and human environment. A well-run international cooperative effort could result in the establishment of one or more data banks for intermediary technologies. Some work has already been done in this field by UNIDO. Indeed, it is relatively simple to solve the problem of gathering and analyzing technological data, but it appears that a satisfactory system for analyzing existing and potential structures and environmental data, as well as the necessary training procedures, is far from being realized.

Technological and Cultural Relationships

The first area to be explored is that of the system of relationships between technology and culture outside the Western sphere (including centrally-planned economies) and those of Africa. One gets the impression that it was the adoption of a similar perspective which made it possible for the Chinese, at a given time, to open up new approaches to the solution of their specific problems. The promoters of development policy in Africa know very little about this subject. What is needed, therefore, is a detailed analysis of the function of technology within any given society (indissociable from the overall social and cultural analysis of that society). The analytical process must be such that it can be made by the people and social groups primarily concerned. In short, a self-analysis; not a closed-circuit analysis but one open to new information, particularly technical data from external sources. A break must be made with the widespread but fundamentally fallacious view that looks upon the cultural patterns of African societies as inherently conservative and hostile to innovation, particularly where technology is concerned. The reality is that the African social system is not open to technological innovations of foreign origin because these must often recall in the collective psyche memories of political domination. Nevertheless, where these recollections can be eliminated, a very different and much more positive attitude prevails. The basic problem is that of the cultural acceptance of technical change.

Cultural Acceptance

Cultural acceptance means that the social and cultural system as a whole is consonant with innovation, that it is able to make it intelligible and that it clearly answers the question "why change?". Development policies are often handled as though the systems dealt with were purely mechanical in which "progress" is self-defining, objective and, therefore, with full and objective authority, a motivating power and self-generating.

It is at this point that the question of "participation" arises from within the society. The takeover of responsibility for technological change can only come about through internal participation by the society, with new elements intelligible to the group and integrated with its own social objectives. The process implies continuing education, not with reference to external influences but in relation to those persons forming the group - defined by a recent line of Canadian research as "self-educating". 1/

What illustrations can be found of this type of orientation? It would appear for the moment to be a very recent development in which there has been little experiment. However, it is useful to draw attention to the preliminary phase of a current Senegalese experiment based on this line of research.

The Senegal Experiment

The Government of Senegal was becoming increasingly concerned over the inapplicability of classical education to the goals of development; 80 percent of the pupils completing elementary schooling could not attend secondary schools, and yet were not prepared by their education to become integrated in a dynamic and meaningful way in the rural labour force. A vicious circle was therefore formed in which the level of technological development of the rural milieu appeared too low to attract their services (particularly as their education had not oriented them in this direction). On the other hand, the non-integration of these young people into the rural economy resulted in the stagnation of technological development.

The decision was therefore made to develop a system of teaching elementary school leavers to provide the training needed to make them part of the national development effort. These reforms provided three possible directions to be taken after elementary school: secondary education, technical school, or practical courses. Practical courses would thus reach the 80 percent of pupils unable to proceed to secondary or technical schools after elementary school.

A debate arose over the conception of practical training which led to a substantial broadening of the initial proposals. Finally, the experimental phase was based on certain selected criteria which represented a profound break with accepted practice and approached the problem from a revolutionary point of view.

In the first place, it was decided to involve not only all former pupils, but all members of each age group in order to avoid an artificial social stratification. Secondly, it was accepted that the new training systems would be managed by the rural communities themselves, with the collaboration of instructors. The implications were that the peasants would participate in defining the objectives, methods and content of the training courses and control their organization.

The experimental phase was programmed as follows:

First Phase: three months in a pilot area (12 villages in the Serere country of the municipality of M'Bour in the Thies region) - discussion with the peasants on rural attitudes and problems with regard to the education and training of the young (extensive contact in the villages; the teams of educators remaining for at least three periods of six days in each village). At the end of this phase, the peasants accept the idea of participating in the training venture and the self-analysis of their problems.

Second Phase: three months of self-analysis by the villagers of their social, economic, cultural and technological systems, aimed at revealing the needs and educational objectives. This self-analysis is accompanied by an exposé by the training team of external constraints and available external resources.

At the end of this phase, the peasants meet to work out the organization of the first training project - objectives, methods and content - and to appoint the delegates who will assume responsibilities within the system. At this point, the training of rural leaders can be carried out.

Third Phase: during an initial six-month period, a group of young people from the surrounding villages are received into the training system. At the end of the third phase, an in-depth evaluation of the practical training courses is made jointly by a group of villagers and instructors and the next steps of the programme are planned.

This is, of course, only the beginning of a programme which will, with time, be expected to spread throughout the country. The initial training team is made up of experts (three) from IRFED 2/ and five Senegalese cadres working very closely together. The experts are expected to back up the training of the Senegalese cadres and to help to define the methodology to be adopted.

In its experimental phase, the operation is financed entirely by the national budget, since the Senegalese Government intends to remain solely responsible for establishing the system.

Radical Departure

The decisive role which can be played in the orientation of development policies by this training structure wholly integrated into rural society is quite clear. In particular, it should make it possible to regard problems of the rate, level and content of technological development in a completely new light. It is obvious that the goal of such a system should be a radical departure from the objectives of rudimentary technological development associated with conventional systems of extension, and to establish in their place the basic educational structures and machinery for actively developing intermediary technologies in a way most beneficial to a peasant economy.

The experiment in Senegal points a way. It marks the growing awareness among African leaders of the need to make a break with the apparent facility of accepted Western patterns and in so doing to achieve true independence.

1/ See "Opération Départ" (Montreal) - Final Report - Government of Quebec, Department of Education, Permanent Board of Education, Studies and Projects Branch, Montreal, May 1971, 4 vols.

2/ "Institut de Recherche et de Formation pour l'Education et le Développement" (Research and Training Institute for Education and Development), 49 rue de la Glacière, Paris 13e.

NEW METHODS OF PRACTICAL TRAINING FOR EXTENSION WORKERS THE EXAMPLE OF THE MALAGASY REPUBLIC

by

Christian M. Lauwers

Can extension workers be trained within an institution? It would be difficult to answer this complex question in a few words. The subject is certainly of interest to all countries where agricultural development is based on improving the lot of the rural masses.

Since each country is unique, the solutions must be original. There is reason to think that the problem can be widely solved, so long as it is tackled without preconceived ideas and reliance on ready-made solutions. This, at any rate, was the hope that led to the achievements which are the subject of this paper - the Malagasy experiment.

Background Information

The Malagasy Republic, straddling the Tropic of Capricorn, has a very important agricultural economy. The primary sector accounts for 30 percent of the GNP, and agricultural products represent nearly two-thirds of the value of imports. The rural population lives on a great number (nearly one million) of small farms. Farming is frequently still at a subsistence level and farms are scattered throughout many ecological and socio-economic islets. The Government has adopted a policy to develop these family farms in order to provide more food for the people, while at the same time increasing exports and reducing agricultural imports.

The task of training these farmers soon revealed the urgent need for an increase in the quantity and quality of extension officers. Over a few years the authorities increased from four to fourteen the number of agricultural schools and colleges for training technical officers (B cadres) and technical assistants (C cadres). While this step ensured a rapid solution to the numbers required, the training of qualified extension workers necessitated a thorough reform of the content of the teaching programme.

Programme Reform

Careful analysis of the eventual tasks to be performed by the trainees provides a sound starting point. It must constantly be kept in mind that training is for the future and job analysis can give only a quick impression of a situation. Hence the scope for future change must be allowed for; and from the outset of programme planning, a permanent system of evaluation and adaptability must also be maintained. Each task described in the job analysis for technical officers and technical assistants makes it possible to formulate precisely the objectives of training utilising practical exercises, laboratory work, school farm work, study of traditional villages, etc., as well as extension theory.

Agricultural extension may be broadly analyzed as follows:

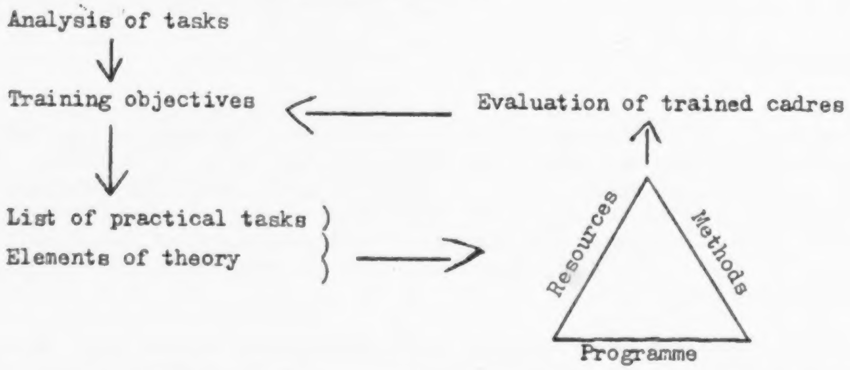
Training objective: Ability to promote the use of new agricultural techniques.

Analysis of objective:

- ability to determine the needs of the farmer;
- ability to make surveys in the rural milieu;
- theoretical and practical mastery of new techniques;
- ability to make individual contacts with farmers and convince them of the advantages of new practices;
- ability to carry out method and result demonstrations.

Collation of all the elements of the various training objectives makes it possible to plan the programme and methodology to be applied. It can be presented in the form of chronological series of practical and theoretical work.

Principle Utilized in Preparing Programmes



This working method reveals the importance of the three elements of the triangle formed by Programme, Methods and Resources. These must be considered simultaneously if the objectives are to be attained. The determination of resources must be stressed; programmes or methods may have to be modified due to the impossibility of acquiring the necessary resources. Striving for perfectionism may defeat accomplishment.

This research process makes possible the retention of the elements of training which are of real value to the future extension workers; at the same time eliminating those which may originally have appeared to be essential but were revealed by the analysis not to correspond directly to any objective.

Modern Scientific Environment

An institution, including a farm, is a modern, scientific complex having few contacts with the traditional rural environment. The students have a marked tendency to acquire bureaucratic attitudes there. The pace of life is much more rapid than in the traditional communities and the students tend to overvalue scientific attitudes.

Students must be given the possibility to study customs, ways of thinking and traditional techniques, and become familiar with the rhythm of rural life. They should be prepared for their role as extension agents. They must be in contact with farmers, talk to them, discover their needs, be able to explain in simple language the techniques they have learned in scientific terms. They must identify the various forms of resistance to change and the arguments which will convince the farmers to adopt new practices.

If it is wished to train leaders capable of working with, and for, the farmers, it is essential to get away from the atmosphere of the institution. The villages provide the students' field of observation and action.

This practical training within the traditional rural communities is carried out during the field training periods. It serves as a complement to theoretical knowledge and answers many of the questions arising in students' minds.

Field training periods total ten weeks. The following studies are included: psycho-sociological, economic and technical problems arising at the level of both the village community and the family farms of which the village is composed; working out with farmers a programme of improvement; dissemination of the objectives agreed upon.

Real trust must be created between students and farmers if the practical work carried out in the village is to prove fruitful. A long period of time between the training periods would bring about a weakening of the ties established. Weekly or bi-monthly visits lasting half a day were therefore instituted, ensuring continuing contact between the farmers and the students.

As a result, the programme has been built around a backbone made up of the field training courses and visits, extension becoming the synthesis of the other teaching. The following table shows the four phases of teaching marked off by the three training periods.

Progression of Training - "Extension and Rural Development"

Phases and Training Periods	Content
Phase I	Socio-economic problems of village communities
Training I (in the field)	Study of village communities
Phase II	The 'how and why' of production The 'how and why' of extension (Part I)
Training II (in the field)	Study of a traditional farm
Phase III	How can a traditional farm be improved? The 'how and why' of extension (Part II)
Training III (in the field)	Dissemination of selected improvements
Phase IV	Detailed study of the various possible improvements In-depth study of extension problems

Objectives of Field Training and Visits

Study of training objectives leads to classification of the abilities to be acquired during the training period and visits. Analysis of the work of extension agents provide the exact objectives for each of the training periods and visits of the various phases (see appendix).

The effectiveness of practical work done in the village community depends largely on how carefully it is organized and supervised and the interpretation of results.

Organization of Visits and Field Training Periods

a) Choice of Villages

The number of villages to be chosen depends on the size of the class and the number of students available to work in each village. Experience showed that the presence of one student for every four to six families did not have too disruptive an effect on village life. Furthermore, this rather high density increases the effectiveness of supervision and final analysis of field training. In an area where communities comprise about forty families and with a class of about thirty students, four villages would be involved.

It was not possible to establish strict criteria for the selection of villages. On the other hand, certain criteria were evolved with experience:

- The environment must be one of traditional farming in order to correspond with the setting in which the future extension agents will work. Villages influenced by a neighbouring city are not selected because the students would be likely to meet families deriving their principal income from wage employment.

- Distances and road conditions should make possible rapid movement and access in all seasons.

- Villages should offer as wide a variety of agricultural activities as possible.

- The social milieu must be sufficiently receptive to permit close cooperation between the students and the villagers.

- The presence of an effective extension centre is a factor which will facilitate the organization of the extension training period. Without local extension agents, the choice of actions is limited by the fear that villages will have to be left before the farmers are able to start adopting the new ideas in the absence of the students.

- In selecting the villages, the aid of all those familiar with the zone - extension workers, teachers, religious leaders - must be sought.

b) Motivation of the Villagers

For visits and training sessions to be effective, farmers must be able to understand the object of the activities. They have a natural tendency to consider the trainees as representatives of the government - to whom no information must be actually refused, while, at the same time, being shrewd enough not to reveal anything of significance. When, however, they fully appreciate the reason behind the students' presence, they will participate sincerely and actively in their training.

The director of the school, accompanied by the professor of Extension and Rural Development is introduced to the village chief by someone in the chief's confidence - such as an established extension worker. He explains the objectives of agricultural teaching and the vital role played by field visits and training. The director will ask the village chief to discuss the matter with the villagers and to organize subsequently a "fokonolona" (village assembly) to make contact with the villagers.

The villagers' decision will be made only after careful thought and after several meetings have been held. Should the decision be affirmative, it should not be thought that this alone will provide sufficient motivation. The motivation of the villagers must be continued throughout the students' stay. This is an essential condition for the growth of trust between the villagers and the students.

Participation of Students in all Village Activities

During training periods, the students live the life of the village, at the peasants' own rhythm. Work, leisure and rest periods will therefore depend on local customs.

After close study of farm activities, the students are asked to observe the way the farmers do things, ask them for further explanations and, above all, participate actively in the work. Thus, they will master the production techniques by observing and also practising them. They will become aware of the laborious, repeated efforts which are the basis of peasant life, and, most important, will prove to the farmers that they have not come as white-collar workers to make surveys, but to be in a position to help the farmers subsequently, and that they respect the farmers and do not shirk manual work. This last point plays a very important part in relations making for mutual esteem and trust between students and villagers.

What is true for work is equally true for leisure and the students are advised to join in the social life of the village. The famous hospitality of Madagascar makes this easy.

Organization of a Training Period in the Field

Each training period is divided into three main parts: preparation, the training period proper, and final analysis of results.

a) Preparation

Documents are prepared and tested as a guide to the students. They are intended to be guidelines and not necessarily followed to the letter. The guides are distributed to the students a few weeks before the training period so they may become thoroughly familiar with them. The period of preparation allows the teachers and students to determine the objectives of the training period, to study the guide and adapt it to the specific circumstances of the villages selected.

At the end of preparation for the first training period guidance is given to students on attitudes to be adopted in the villages. As guests of the communities, the students must behave accordingly and take care not to disturb the peace. Knowledge of local customs will enable them to avoid making gaffes.

b) Support and Supervision during the Training Period

Supervisors, in groups of two or three, regularly move throughout the villages in order to maintain contact with the villagers, encourage the students, help the latter to solve their problems and check their work to correct errors. At the same time, they evaluate the work of each student.

c) Analysis of Results

The students spend two weeks in group discussions of their experiences; this period of reflection is essential if they are to profit fully from the training.

The principal objectives of the analysis of results may be summarised as follows:

- to supplement the individual reports by having the students discuss, in a group, the things they have witnessed (without, perhaps, understanding their full importance at the time) and to draw up a synthesis. This is duplicated and distributed to the students as a guide to subsequent training.

d) Evaluation of Work Carried Out

Evaluation of each student's work is done by means of a careful system of grading taking into account: interest shown by the student, his active participation in work, spirit of initiative, quality of contacts and the value of the information gathered.

Visits

In addition to the training periods referred to, short visits, lasting usually half a day, are paid to the villages. The five hours a week devoted to visits allow only very limited activity by the students. Hence the objectives must be well defined. Choice of the day for the visit is important; it is necessary to find out about local habits and customs. Market days, times when certain work is forbidden and so on, must be avoided.

Rural Animation

Events breaking the monotony of everyday life play an important part in traditional rural community life. When, in addition, they represent an unusual or completely new entertainment, they are particularly appreciated by the villagers.

The first animation evenings were organized for the purpose of thanking the communities for their hospitality. It very soon appeared that, in addition, they served to markedly improve relations between the villagers and the students. The evenings are organized entirely by the students who first submit to their instructors for approval a detailed outline, the text of the talks and the subjects to be discussed.

The effectiveness of these meetings depends on the care taken in their preparation. A certain minimum of equipment is necessary. It proved useful for all the establishments to have at their disposal: a small generator; a set of outdoor lights; a set of films and film projectpr; a set of slides and slide projector; an amplifier, microphone and loud-speaker; a tape recorder and tapes.

In addition to these evenings which some institutions organize two or three times a year in each village, the students during the training periods can also "animate" the village in other ways - evening discussions, sports with youth, teaching to read and write, etc.

The Malagasy accomplishment has proved that "apprentice" extension workers can be successfully trained along the lines described above. Of course, they still have much to learn but with such a training they should be able to carry out their subsequent jobs to the greater satisfaction of their employers than might otherwise be the case.

APPENDIX

Major Objectives Selected for Field Training Periods and Visits

Common Objectives

To be able to:

- observe
- contact the farmer
- speak to the farmer in a language he will understand
- cross-check data obtained
- adopt behaviour appropraite to the milieu under study
- gradually gain the farmer's trust

Objectives of the first training period and visits of Phases I and II

To be able to analyze:

- the physical surroundings
- the factors of production
- the farming techniques in use
- non-agricultural productive activities (fishing, hunting, crafts, trade, paid employment)
- consumption and trade activities
- the organization of the village and selection of local leaders with authority
- the organization of the family and determination of how the decision-making process works

Objectives of the second training period and visits of Phases II and III

To be able to:

- determine the make-up of the average family
- find out the family's position in the community
- identify active minorities
- assess a family's land, labour and working capital
- make estimates of areas and weights
- use local measurements and convert them to metric measurements
- study the traditional use of monetary and non-monetary incomes
- determine weak points of production and utilization of products
- find out what are the farmers' needs and wants
- discover psycho-sociological "blocks"
- identify farmers' reactions to various extension activities
- pick out the weak links in marketing and supply chains

Objectives of the third training period and visits of Phases III and IV

Ability to:
- choose actions
- be realistic in the choice of operations proposed to farmers
- relate the farmers' needs to the national development plan
- recognize improved methods of production or utilization
- examine whether the improvements will bring an economic return
- be aware as to whether the action can be completed
- be sure that the necessary resources can be assembled

Ability to convince farmers by:
- explaining the advantages of the action advocated
- explaining the various resources and work involved
- organizing visits, meetings, result demonstrations, etc.
- using audio-visual equi;ment effectively
- identifying the local authorities whose cooperation is essential

Ability to transmit a skill by:
- having a practical and theoretical mastery of techniques
- knowing how to plan the timing of each operation
- having the ability to assemble the necessary resources
- knowing how to respect one's work plan and adjust it to specific problems
- ability to transmit skills through individual contacts and group methods
- knowing how to draw up an activity report
- knowing how to supervise work (and to have work supervised)
- knowing how to evaluate results at the various stages of the operation

NOTES AND COMMENTS

Postgraduate training in Animal Science for FAO Fellows at the Royal Veterinary and Agricultural University, Copenhagen

Under the FAO/Danish International Development Assistance Cooperative Programme, postgraduate training in animal science for FAO fellows was initiated in 1969 at the Royal Veterinary and Agricultural University in Copenhagen. The objective was to offer advanced training to selected animal husbandry teachers, advisers and research workers from developing countries. The programme itself was very wide-ranging and comprised theoretical and practical instruction in animal nutrition and animal breeding, as well as certain supplementary subjects such as experimental design, animal disease and hygiene, and processing of animal products.

This note sets out the current thinking on this programme and outlines its present scope.

Scope: Special emphasis is now laid on cattle production; it is intended that the training will expose the students to modern methods of breeding, feeding and management of cattle. The students are also given the opportunity of studying either poultry production or pig production as a supplementary subject.

Entry requirements: The basic qualification for admission is a degree from a university or other institute of higher education, which should be equivalent to a B.Sc.Agriculture or B.V.Sc. degree. The candidates should be engaged in teaching, research or extension work in public institutions and should possess an adequate knowledge of English.

Duration of training: The training programme extends over one academic year, beginning 1 September and ending 30 June of the following year.

Place of instruction and teachers: The instruction takes place mainly at the Royal Veterinary and Agricultural University, Copenhagen. The instructors and teachers are scientists of the University and of the National Institute of Animal Science. Staff members of other institutions connected with animal science in Denmark may also participate in the instruction.

Curriculum: During the first term, which extends over a period of four months from 1 September, instruction is provided in physiology, genetics, feed evaluation, feedstuffs analysis and stoichiometry, experimental methods and electronic data processing, an introduction to feeding trials, and extension methods with a view to laying the foundation for a proper understanding of modern principles of breeding, feeding and management of domestic animals. The planning, execution and compilation of results of experiments with cattle also form an integral part of the first term's work so as to train students in the methods of procuring research results. Practical training is given in laboratory evaluation of feedstuff composition (using feedstuffs from the home countries of the participants), as well as in stoichiometric calculations. Special emphasis is placed on group work, on practical training and on seminars which include inter-disciplinary topics.

During the second term, which extends from January to June, special topics in breeding, fedding and management, including animal reproduction, artificial insemination, hygiene and milking, are covered. The students are also introduced to field extension work during this time. In addition, each student participates in a research project of his own choice, and great importance is attached in this connection to the interpretation of research results with special reference to their application in extension work.

Administrative arrangements: The programme is administered by the Veterinary Faculty of FAO fellows at the Royal Veterinary and Agricultural University, Copenhagen. The Director of the Programme is Professor A. Neimann-Sørensen, D.V.Sc., of the Department of Cattle Research of the Royal Veterinary and Agricultural University.

Normally, ten students are admitted per year on the basis of nominations received from governments that are invited to recommend suitable candidates. The nominations are received by FAO and the final selection of candidates is done jointly by FAO and the Royal Veterinary and Agricultural University, Copenhagen.

* * * *

FAO/SIDA World Consultation on Forestry Education and Training Stockholm, 1971

The Consultation was financed by the Swedish International Development Authority and sponsored by FAO, in collaboration with Unesco and ILO. There were 261 participants, including representatives of university, technical level and vocational forestry institutions, national forest services and executives of private industries, researchers, planners and forestry students from 74 countries and 11 international organizations.

The objectives of the Consultation were to examine the present world situation of forestry education and training and define desirable future trends in the light of widespread changes in educational systems and practices, advances in science and technology and in forest policies; to draw conclusions as to how to adapt education and training to changing social requirements and particular needs of developing countries; to promote a greater exchange of knowledge and guidelines for international cooperation.

The Consultation emphasized forestry's role in socio-economic development and in contributing to the ecological balance of the human environment. The importance of training forest workers in order to improve their employment and career opportunities was recognized, as was the need to inform politicians and the public about forestry's role today. Organizational and methodological objectives were clarified and important ground work was laid for revision of curricula, evaluation of training, and preparation of teaching methods and aids. The Consultation resulted in an exchange of ideas and information across language, geographical and socio-economic barriers to an extent never before attained in this field. The recommendations, addressed mainly to governments, to FAO and to other international agencies, and to educational or training institutions, will provide a basis for developments in this field over the next decade.

The recommendations fell under a number of headings, including international cooperation, dissemination of information, forest workers' training, extension and public relations, quality of education and training, and teaching aids and techniques.

A full report of the Consultation is obtainable from Distribution and Sales Section, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

* * * *

A Forestry Education Development Course for Latin America will take place late in 1973. The course will deal with (1) manpower planning, identification of employment opportunities, determination of educational goals and curriculum content, on the basis of job analyses and the actual level of competence of candidates coming forward for training in forestry; (2) curriculum implementation, teaching methods, teaching aids, student and programme evaluation, administration and costs of educational programmes. There will be some 25 participants.

The Fourth FAO/SIDA Training Course on Cereal Seed Production, Control and Distribution was held from 1 June to 30 September 1972 at Lund Sweden.

Training Courses on Tobacco Culture, Curing and Extension, a series of farmer training courses lasting 45 days each were organized on a national basis by the Syrian Government and FAO, under Project UNDP-SYR/69/529 at Aleppo Lattakia, Syria, between December 1971 and March 1972. Thirty to forty trainees participated in each training course.

* * * *

An Expert Consultation on Fishery Education and Training took place at FAO Headquarters in November 1972. It appraised the existing programmes and facilities and identified measures to be taken at the national, regional and international levels to establish or improve education and training facilities. Emphasis was placed on long-term strategic planning. The Consultation was concerned with the training of the following categories of personnel: fishermen, coxswains, mates and skippers, mechanics and ships' engineers, radio/instrument operators, boat-builders, instructors to train operatives, and fishery extension officers.

A Seminar on Dairy Education and Dairy Development for Latin American Countries will be held in Chile in early 1973.

An Expert Consultation on Training in Rural Sociology in Latin America was held from 26 November to 1 December 1972 at the Institute of Economic Research, University of São Paulo in Brazil. This Consultation was organized by FAO with the cooperation of the Organization of American States (OAS) and the Interamerican Institute of Agricultural Sciences (IICA), both of which invited participants.

The main purpose of the Consultation was to formulate specific recommendations on the content and methods of teaching rural sociology particularly suitable for university faculties of agriculture and forestry. It also discussed the methods of training rural social scientists in Latin America most adapted to rural development problems and needs.

The Ninth International Congress of the Union of Nutritional Sciences was held in Mexico in September 1972. A special Commission of the Congress considered nutrition education and training and one of its committees gave specific attention to these subjects in relation to "Schools of Agriculture". FAO was represented at the Congress.

An International FAO/IHFE Expert Consultation, UNFPA-funded, is planned for early 1973. This cooperative programme aims to foster and encourage national home economics associations and individual home economists to become more actively involved in questions related to population and family planning within the context of their own national and community development plans.

Planning is in progress for a FAO/SIDA Workshop for Teachers (Home Economics/Nutrition) at institutions of intermediate-level agricultural education in East and South Africa, to be held in 1973 at Egerton College, Njoro, Kenya.

A Dairy Training and Demonstration Unit is to be established under the joint auspices of the Government of Ghana and FAO. The unit will be located at Nungua Agricultural Research Station and utilized by the Faculty of Agriculture, University of Ghana, for training diploma undergraduate and postgraduate students. The project is financed by DANIDA.

* * * *

FFH/Action for Development is an education and action programme of FAO which works with both non-governmental organizations and governmental services in Third World and developed countries. Its objectives are to stimulate critical awareness of development issues and to promote the participation of people in their own development.

Among the activities that FFH/AD is organizing in 1972/73 to support the programmes of national groups in Asia, Africa and Latin America, many will focus in particular on innovations in non-formal education for rural development. Plans include study tours, evaluations and workshops on specific programmes which have evolved new approaches to non-formal education, such as the Botswana Youth Brigades, the BUTSI Volunteer Village Animation Programme in Indonesia and rural conscientisation in Chile, and on problems of general concern like the training of local leaders, village-level communications and bridging the gap between schools and rural communities.

Enquiries regarding the programme should be addressed to The Coordinator, FFH/Action for Development, FAO.

* * * *

Royal Agricultural Society of the Commonwealth - Membership of this Society includes agricultural societies in Australia, Canada, Kenya, New Guinea, New Zealand, Rhodesia, United Kingdom and Zambia. The main aims of the Society, which was set up in 1957, are to encourage and arrange an interchange of knowledge and experience in the practice and science of agriculture with a view to improving methods of crop production and breeding of livestock, improving the efficiency of agricultural implements and machinery, and encouraging the exchange and settlement of young farmers within the Commonwealth.

An important facet of the Society's work has become the exchange of ideas and information on new techniques, with special reference to agricultural shows and exhibitions. The Society would like to hear from countries interested in developing the use of field days and agricultural shows, and would be pleased to make its experience available in appropriate cases.

The Secretary is Mr. F.R. Francis, 17 Devonshire Street, London WIN 2BQ.

* * * *

Publications

Three manuals have recently been issued by the "Ecole Fédérale Supérieure d'Agriculture", Cameroon:

1. "Pedologie générale : two volumes -
   - "Introduction" (116 pages)
   - "Description des principaux sols du Cameroun" (54 pages)

   by F. Ninane
2. "Génétique" by F. Vallerand (242 pages)
3. "Manuel de techniques d'expression écrite et orale à l'usage des écoles d'agriculture" - by Daniel Parrot and Pierre Bauchau (263 pages)

These are valuable additions to the teaching materials available in these fields. Thus far, they are available in French only from the above School, the address of which is B.P. 138, Yaoundé, Cameroun.

"A Guide for the Introduction of Food and Nutrition in the Primary School" has been published in English, French and Spanish, as one of the series of "FAO Nutritional Studies".

"A Catalogue of Nutrition Training Institutions in Member Nations" has been prepared and will be published in 1973.

A new quarterly journal "World Animal Review" is now being issued by the Animal Production and Health Division, FAO. The journal reviews developments in animal production, animal health and animal products and by-products, with particular reference to Asia, Africa and Latin America. It is obtainable from Distribution and Sales Section, FAO, Rome.

The Agricultural Information Section of the New Zealand Department of Agriculture has issued 36 advisory aid booklets covering the whole range of agricultural communications, conferences, group work, exhibits, radio, etc.

Enquiries should be made to:

The Agricultural Information Section
Department of Agriculture
P.O. Box 2298
Wellington
New Zealand

A Bahasa Indonesia translation of the Better Farming series of 23 booklets is being published by Penerbitan Nusa Indah Ende-Flores, under the title Seri buku BERTANI PRAKTIS. Price per volume Indonesian Rps. 70. Enquiries should be made to the publisher at:

Flores-Timor Plan
LPPS/NTT Nita
Maumere-Flores
Indonesia

The series in English and Arabic is also available from FAO, and in French from the Institut africain pour le Développement économique et social, B.P. 8008, Abidjan, Ivory Coast.

* * * * * * *